

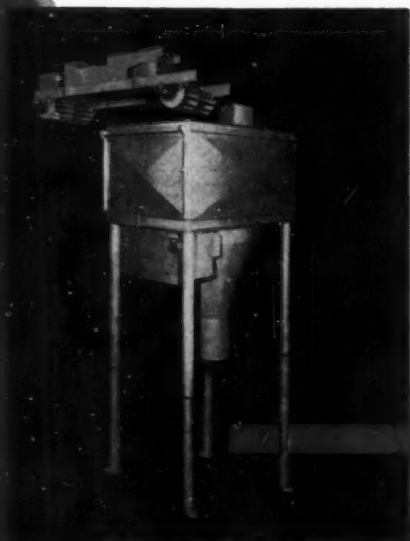
JULY
1961

COMMERCIAL FERTILIZER

and PLANT FOOD INDUSTRY

***CROPS NEED GROWTH
SELL NITROGEN NOW***

SEE PAGE 19



Sooner or Later
You'll be Packaging
Your Fertilizer in

50!
POUND
BAGS

Sooner or Later You'll be Wanting **THE KRAFTPACKER**

**AUTOMATIC OPEN MOUTH BAG FILLING MACHINE
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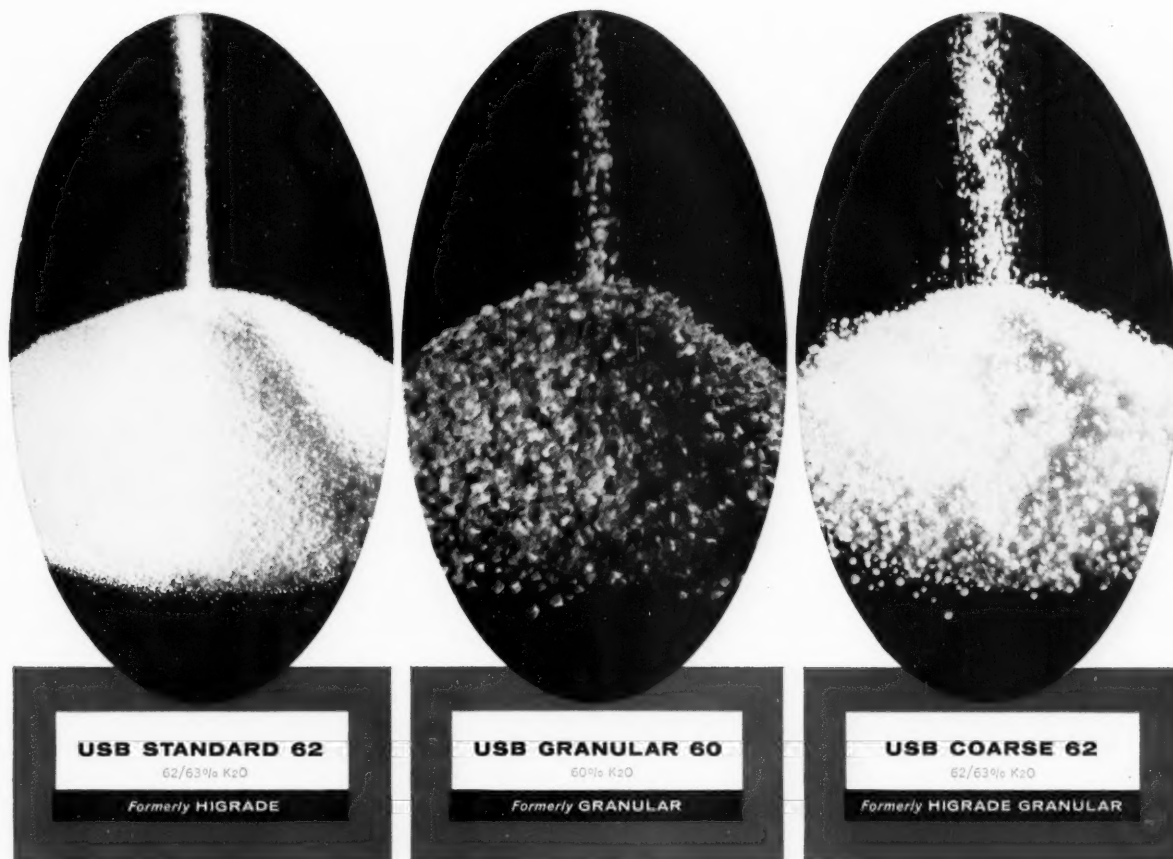
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Subscription rates:
 United States \$3.00 per year; 3 years, \$7.50.
 Canada: \$5.00 per year; 3 years, \$12.00.
 Foreign: \$10.00 per year; 3 years, \$24.00.
 Single copy: current issue, 50 cents;
 back issues, \$1.00.

◆ COMMENTING FREELY

by

Bruce Moran

As we hit the planning stages of the new fertilizer season, we see the usual confusion about pricing and other marketing policies. Off-season price reductions are great stuff in some camps, and no good whatever to others.

There is enthusiasm to break the chains of age-old habit . . . and there are hands raised in holy horror at the idea.

There are the discount fans, and those who sternly set prices and hope to hold them.

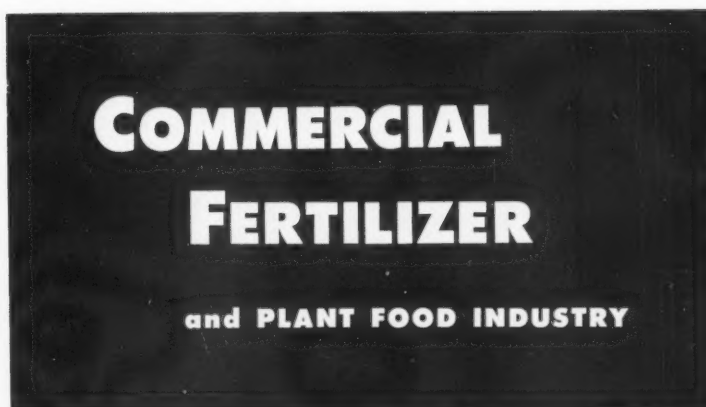
Somehow, though things like this make the industry seem a confused mess to outsiders—we struggle along, we grow in volume, we do a better job of researched manufacture.

Somehow we remain the farmer's true friend, giving him an honest bag of plant food as pure as he will accept.

And somehow the decrease in inert material in our products continues year by year . . . indicating the growing belief the farmer has in fertilizers.

Happy New Season, Gentlemen!

July, 1961



Vol. 103, No. 1

July, 1961

Established 1910

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Second-class postage paid at Atlanta, Georgia. COMMERCIAL FERTILIZER and Plant Food Industry is published monthly by Walter W. Brown Publishing Co., Inc., 75 Third St., N. W., Atlanta 8, Georgia.



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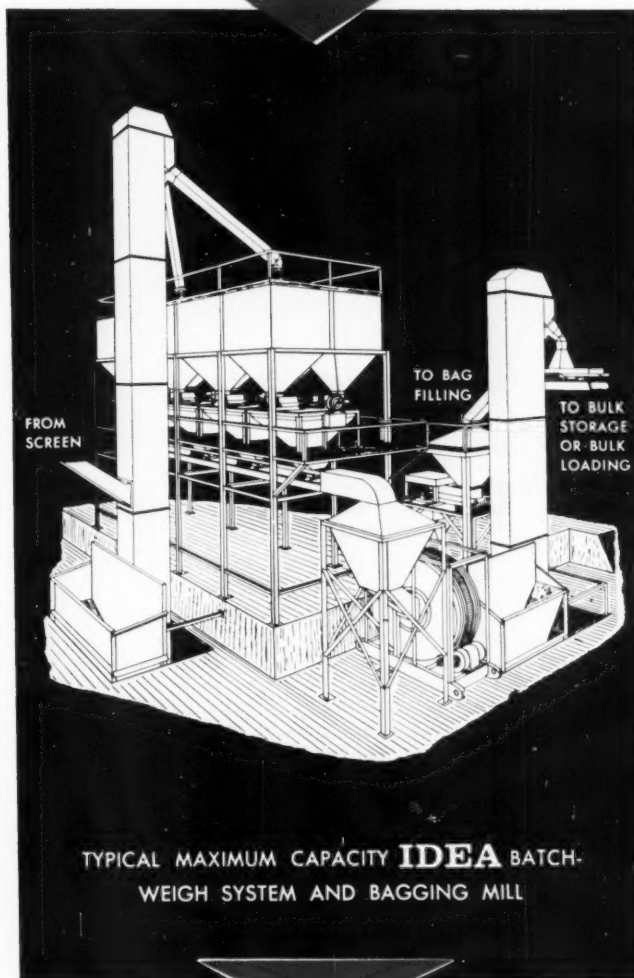
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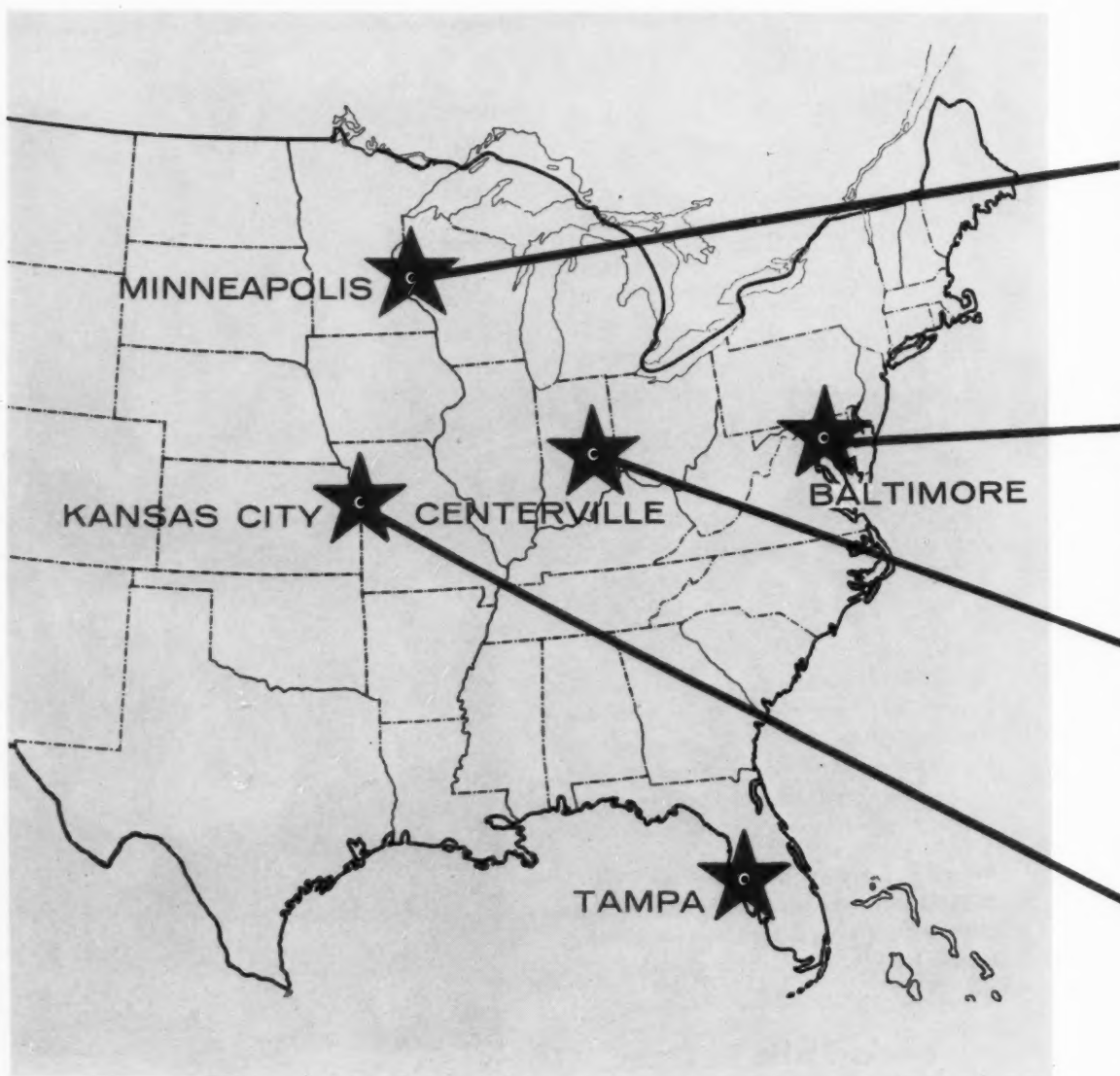
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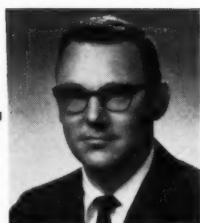
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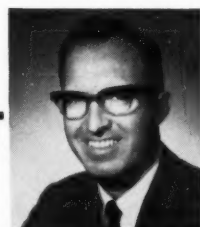
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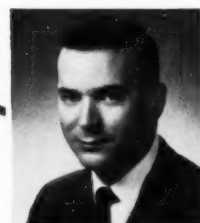
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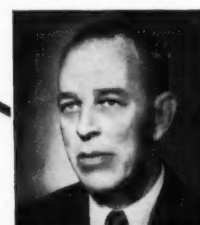
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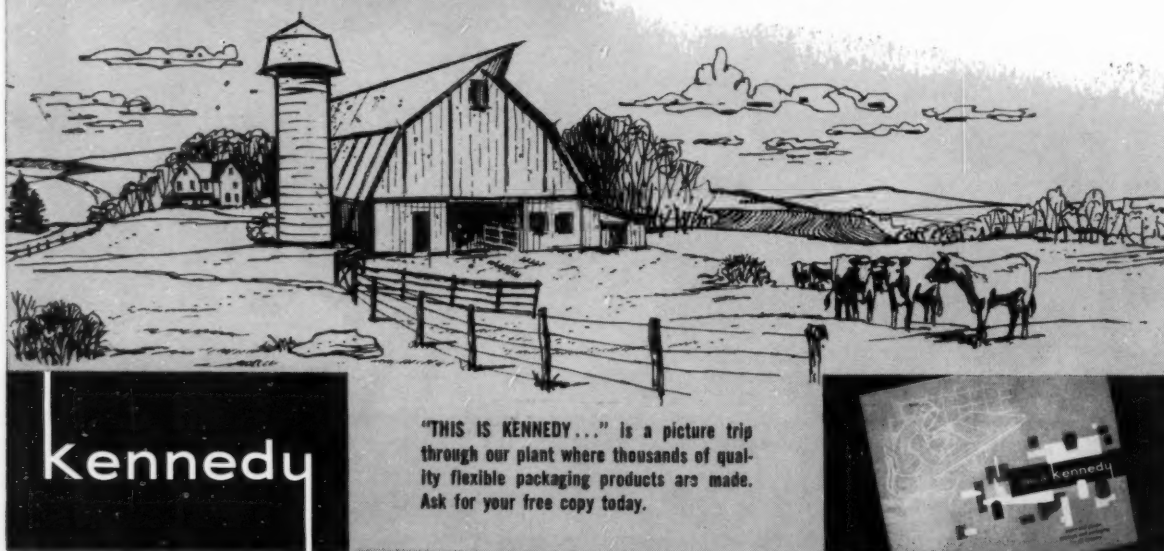
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JUST AROUND THE CORNER

By Vernon Mount



TIMES HAVE CHANGED. Once it was wonderful to crack down on the "octopusses of big business" but these days so many widows, orphans and other voters own stock in giant corporations that the action is not nearly so likely to be popular.

CAMPAIGN FUNDS, too, come from big business. And large companies are not likely to be happy over the crackdowns that seem to be stepping up in frequency, intensity and size. Maybe big business has been bad, in the light of administration thinking. But the administration itself is a little confused where collusion occurs on the one hand in higher prices, and on the other - in the same industry - on agreed lower prices.

DUPONT AND STANDARD stories recently inspire this discourse. Standard Oil of California and of Kentucky—violently parted, if I remember, by Teddy Roosevelt—have agreed on merger terms. Of course, they operate many miles apart . . . but! On the other hand DuPont is frantically trying to find a way to part with their big General Motors holdings, without upsetting the tax apple-cart for themselves and for the stockholders of both outfits.

IT IS TO WONDER, as some character - in a play? - used to say, shaking his head lugubriously.

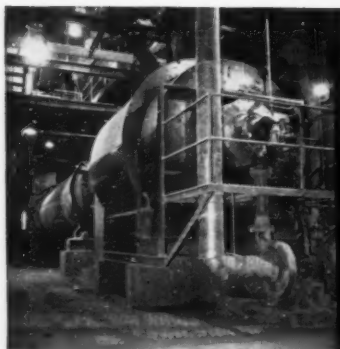
Yours faithfully,

Vernon Mount

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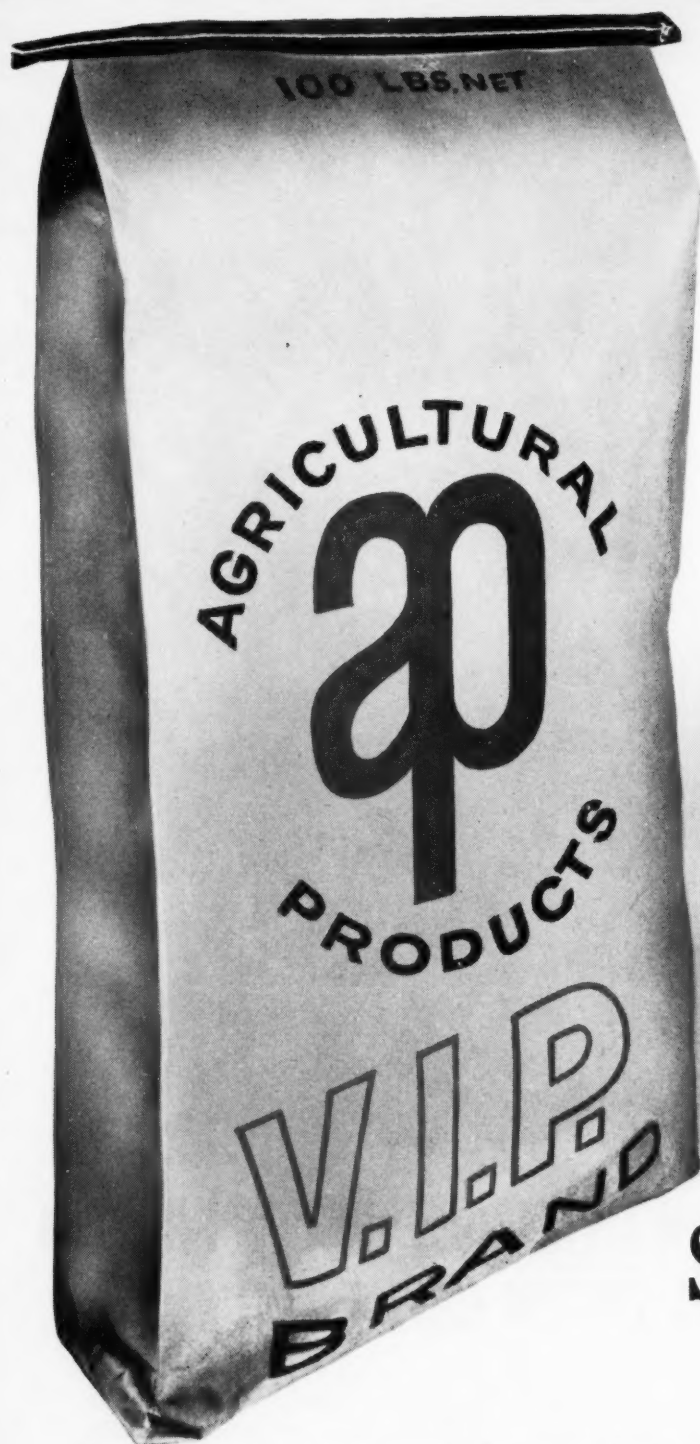
McDermott-designed lifters with cup design, staggered for even distribution of granules.

This is one of 17 Rotary Dryers and Coolers, planned, designed and built for the American Agricultural Chemical Company. This dryer installation is at their Saginaw plant.

Write for free brochure on McDermott Equipment, or for estimates.

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Nitrogen fertilization can increase grain protein content by more than 30% . . . per-acre grain yield by more than 100%. High total crude protein in grains means more beef, lamb and mutton—on less purchased protein feed supplements. Our "Tech-Tips" Bulletin #4 gives full details . . . and Texaco offers 16 Nitrogen solutions for fertilizer manufacture.

Solutions range from 37% to 53% nitrogen content. Sixteen different Nitrogen Solutions—ranging from 37% to 53% nitrogen content—are available at our Lockport, Illinois, plant. Six solutions also contain urea. Delivery is always fast and on-time because of ample loading, switching and transportation facilities.

Technical advisory service available. Write—if you have a technical problem involving fertilizer manufacture. Our Research may have the information you need.

Our manual, "Texaco Ammonia and Nitrogen Solutions For Farm and Industry," also contains much useful information for the fertilizer manufacturer. For your free copy, plus regular copies of "Tech-Tips" as they appear, write:

Texaco Inc., *Petrochemical Sales Division*, 135 East 42nd Street, New York 17, N. Y., or 332 South Michigan Avenue, Chicago 4, Ill, Dept. CF-32.

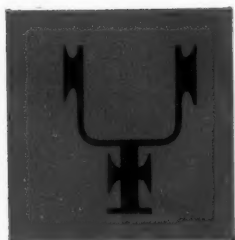
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SYMBOLS OF PLANT LIFE



In medieval times, the "black art" of alchemy was condemned by superstitious authorities hardly less ignorant of chemistry than the masses. To avoid persecution . . . and possible execution . . . for witchcraft, alchemists invented secret symbols for use in their experiments with potash and other basic elements.

TODAY, EXPERIMENTS ARE STILL BEING MADE WITH POTASH . . . BUT NOW NO SECRETS SURROUND ITS IMPORTANCE IN AGRICULTURE.

FOR THE PRODUCTION OF QUALITY FERTILIZERS, SOUTHWEST POTASH CORPORATION SUPPLIES MIXERS WITH DEPENDABLE HIGH-K[®] MURIATE—IN STANDARD, COARSE AND GRANULAR GRADES.



17th Century Oven and Still

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Dorr-Oliver has had 45 years' experience in the field of concentrated fertilizer production via the wet process of manufacturing phosphoric acid. Dor-Oliver designs and builds complete plants.

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Dorr-Oliver designs plants for producing strong acid (32 to 33% P_2O_5) directly by its well-known process.

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Dorr-Oliver designs plants producing directly from 32 to 40% P_2O_5 phosphoric acid a wide variety of compounds such as 14-14-14, 14-28-14, 12-36-12, 11-48-0, 16-20-0 and 18-46-0 as hard, uniform, free-flowing granules based on mono or diammonium phosphates.

PHOSPHORIC ACID EVAPORATION

Dorr-Oliver designed vacuum evaporator stations eliminate serious scaling, reduce P_2O_5 losses to a negligible point and involve no fume problem.

NON-GRANULAR TRIPLE SUPERPHOSPHATE

Dorr-Oliver designs plants for producing a soft triple superphosphate with optimum characteristics for mixing and ammoniation.

AMMONIUM SULFATE FROM CALCIUM SULPHATE

Dorr-Oliver has successful experience in the use of by-product gypsum from phosphoric acid

MIXING AND GRANULATION

Dorr-Oliver designs plants for producing compounds in the form of hard, uniform, free-flowing granules from a variety of raw materials in solid or liquid form.

TRIPLE SUPERPHOSPHATE FOR DIRECT APPLICATION


Dorr-Oliver designs plants to produce hard, uniform, free-flowing granules by its own process requiring evaporation to only 38% P_2O_5 with no need for subsequent curing.



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Offer an "alfalfa special"—a little borax added to your mix is all it takes to provide you with a product that has a lot of sales plus. Borax is so vital to the profitable growth of alfalfa that most large producing states recommend annual applications.

Formulate a borated fertilizer to fit your area's soil needs... it can boost yields for the farmer and build bigger profits for you.

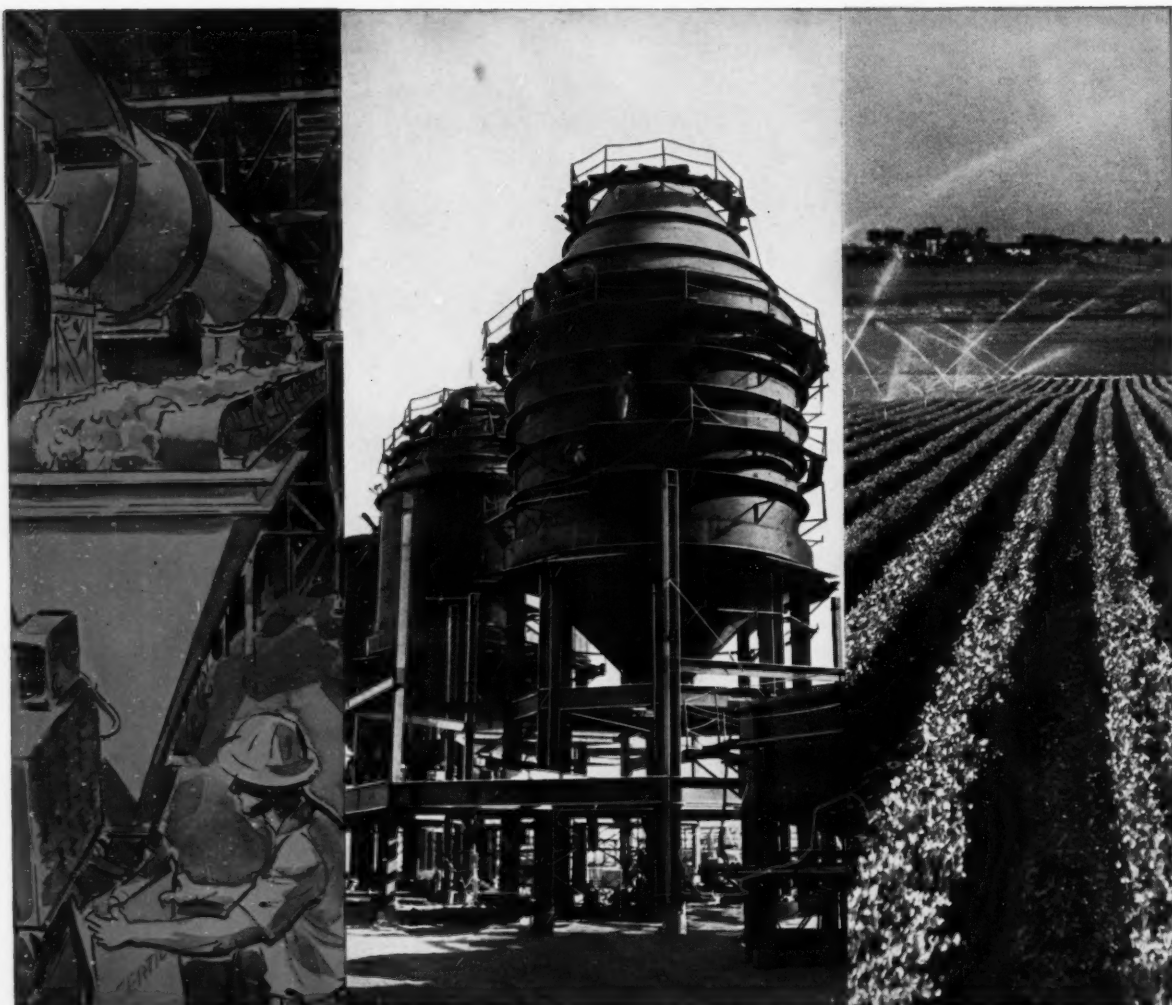
Get the full borax profit story—write to Plant Food Sales, U.S.BORAX, 50 Rockefeller Plaza, New York 20, N.Y.

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Top-quality Alfalfa . . . Fertilized with boron, grows lush and strong — provides maximum yields with increased profits. Such vigorous growth shades out weeds and results in longer life stands.

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3-WAY BOOST IN POTASH

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WILL SOON MEAN BETTER SERVICE...BETTER MIXED
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Increased production of Muriate of Potash at Trona will be measured in three-way benefits. Expanded potash facilities, shown above, will soon make available from AP&CC more tonnage of free-flowing, uniform granule size Trona potash in granular and regular grades for agriculture's expanding needs. To the mixer, more quality potash from Trona will mean a better finished product . . . and to the grower, higher yields of quality crops.

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Arcadian® News

Volume 6

Nitrogen Division, Allied Chemical Corporation

Number 7

CROPS NEED GROWTH SELL NITROGEN NOW

Crops in many sections of the country have suffered a severe set-back, due to cold, soggy weather. The effort to get crops planted—or in many cases the rush to get them replanted—has left many fields short of even normal fertilizer applications. And, with soils cold or waterlogged, the production of available nitrogen from organic matter has been slowed. The best answer to this problem is nitrogen side-dressing *now!*

Number One Need

This is the summer to sell nitrogen to perk up yellow-leaved, slow-growing crops that are obviously hungry. If there ever was a season when supplementary nitrogen would show up in extra crop growth and profits, this is it. You have the products, the equipment and the sales ability. Now is the time to feature the full line of ARCADIAN® Nitrogen Fertilizers, both liquid and dry. Every one of these ARCADIAN products has special advantages in a season like this. ARCADIAN NITRANA®, Golden URAN® and FERAN® Nitrogen Solutions are especially easy to apply fast on many acres per day the liquid way. ARCADIAN American Nitrate of Soda provides the readily available nitrate nitrogen that all crops need in a year like this. ARCADIAN Ammonium Nitrate and ARCADIAN A-N-L® provide quick-

acting nitrate nitrogen plus long-lasting ammonium nitrogen in America's favorite dry nitrogen fertilizers. A-N-L also supplies magnesium needed by many crops on a wide variety of soils. And ARCADIAN UREA 45, the 45% nitrogen fertilizer, provides the most concentrated, work-saving, dry nitrogen fertilizer farmers can use.

Stir Up the Soil

In a season like this, it helps to use side-dressing applicators that stir up the soil to let air and oxygen reach the roots. Crop roots need oxygen as well as plant foods and side-dressing breaks the surface crust on the soil to let air enter. This is especially true on silt and clay soils, and even on lighter soils where flood water or beating rain has sealed the soil surface.

Side-dress Many Crops

Where corn, sorghum, cotton, sugar beets and other major crops have already been side-dressed, don't forget to sell nitrogen side-dressing for the many other crops that need an extra nitrogen push. Silage corn, late sweet corn, tomatoes, cabbage and many other vegetable and row crops need nitrogen now. It gives these crops a chance to get nitrogen fertilizer, and nature will help them catch

up even in a late, slow season. Sell enough nitrogen side-dressing this summer and you can build a good reputation for providing fertilizer that makes crops *get up and grow!*

Don't Forget Grass

Top-dressing pastures and meadows is another summer practice that should pay you and your customers well. The wet spring brought on lush grass growth that used up much of the available nitrogen in the soil. Not much nitrogen has been broken down from organic matter to bring on re-growth of grass. ARCADIAN Nitrogen side-dressing not only supplies this needed nitrogen, but also takes full advantage of good soil moisture to make extra-heavy, second-cutting hay, and lush, green, protein-rich grazing through the remainder of the growing season.

Problem Brings Opportunity

If you have felt a pinch in the pocket-book through a slow May and June fertilizer season, summer sales are your best cure. Your farmer customers want to see their crops grow, but they can't be too sure of good growth and good yields. Help them now by persuading them to use ARCADIAN Nitrogen and you'll be doing the right thing at the right time.

(continued on following page)

(continued from preceding page)

Check your supply of ARCADIAN Nitrogen Products now. Figure out which ones fit your sales area best, and make this a summer sales season to remember!

ARCADIAN Nitrogen Products

NITRANA—contains nitrate and ammonia nitrogen. Also available in NITRANA U formulation containing urea, nitrate and ammonia nitrogen. Ideal for liquid side-dressing by injection into the soil. Economical per pound of N.

Golden URAN—quick-acting and long-lasting. Contains nitrate, urea and ammonium nitrogen. A non-pressure liquid, ideal for speedy top-dressing or side-dressing—and a real money-maker.

FERAN—favorite ammonium nitrate fertilizer in easy-handling liquid form for top-dressing and side-dressing. Quick-acting and long-lasting.

AMMONIUM NITRATE—free-flowing, hard-pelleted and easy handling. America's favorite dry nitrogen fertilizer with the reliable ARCADIAN brand name.

AMERICAN NITRATE OF SODA—the proven old favorite for quick nitrate nitrogen results to bring crops along fast.

A-N-L—the free-flowing ammonium nitrate fertilizer that also supplies magnesium essential to good crop growth in many soils. Non-acid-forming, easy spreading.

UREA 45—concentrated 45% nitrogen, a real labor-saver. Dissolves readily in soil moisture or irrigation water. Spreads with the moisture to feed crops. A premium product at a practical price.



For Volume and Profit— Look to Lawn Fertilizer

You can cash in on the profitable market for lawn fertilizers next year if you prepare now to make the concentrated, easy-handling mixed fertilizers containing slow-release nitrogen that are in big demand by home-owners for lawns and gardens. This market is growing fast and quality products are taking a far bigger share of the total.

Volume is big enough now to make

the specialty fertilizer business attractive. And growth per year is tremendous. Surveys indicate that home-owners spent more than \$450 MILLION on fertilizers, insecticides and weed-killers in 1960—more than twice the amount they spent in 1955. Fertilizer takes the biggest share of the total, and lawn fertilizer makes up the major part of the outlay for fertilizer.

Pride and Performance

When you aim for the quality turf fertilizer market, you have a powerful influence working in your favor—the pride of the homeowner. Produce a quality product that makes it easier for the turf grower to get what he wants—a luxuriant, green, easier-to-care-for lawn—and you'll make real progress. Allied Chemical has the nitrogen and the know-how to help you make these practical, easy-to-use, concentrated lawn and garden fertilizers.

The day of selling an extra 80-pound bag of ordinary low-nitrogen fertilizer for the lawn is long past its peak. More profitable, high-analysis, high-nitrogen fertilizers are taking over the market. Whether you double or triple the plant food content per pound is not the only consideration. You provide the right high-nitrogen ratio for turf in your area,



Arcadian News for Fertilizer Manufacturers from Nitrogen Division, Allied Chemical

say a 3-1-1 or 2-1-1. And you provide more plant food in a small, easy-to-handle, easy-to-store package. The leaders in this field are making money. You can too, with the right product.

What Grass Needs

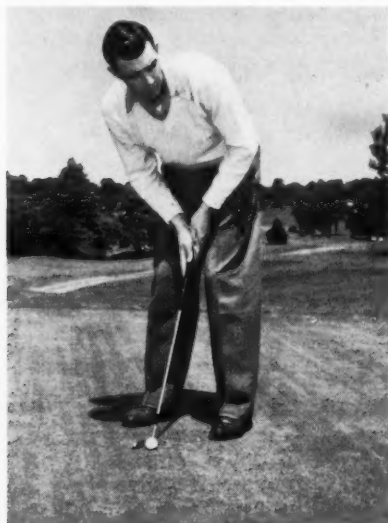
Turf experts and fertilizer experts agree that high-nitrogen balanced fertilizers are ideal for grass. The 3-1-1 and 2-1-1 ratios have been proved in use by thousands of lawn-owners. The less weight they have to lug home to give their lawns the required poundage of balanced plant foods, the better they like the results. Pride in a lawn, made by perspiration, is genuine. Pride in a lawn kept good with less work is far better—and much more apt to bring your dealers repeat customers.

Simple and Sure

To make these concentrated lawn fertilizers containing a big percentage of slow-release, long-lasting nitrogen, you need methylene ureas. The practical way to incorporate slow-release methylene ureas in your fertilizer is by using ARCADIAN N-dure, ARCADIAN Urea 45 and one of the ARCADIAN U-A-S Nitrogen Solutions. This is the way to make high-quality, high-analysis lawn fertilizers that are long on profit and volume potential. For a fertilizer containing a smaller percentage of methylene ureas, ARCADIAN DURANA Nitrogen Solution is the ideal ammoniating solution.

Many Advantages

- Methylene ureas feed nitrogen to grass at the rate grass needs nitrogen—



a little every day. Fertilizer can be put down easily to keep a lawn at its best.

- You can make the methylene urea nitrogen with molecules of varying types to provide this slow, steady release of nitrogen to the grass.
- Your concentrated fertilizer with most of its nitrogen from slowly-available methylene ureas has a pleasant odor!
- Your new, concentrated, safe-to-use fertilizer will feed a 4,000 square-foot lawn from one package that is a fraction the weight of the old 80-pound bag. Think of the additional sales and dollar volume per ton! Think of the reduced shipping and storage costs and reduced display space! Think of all the lawn owners—men and women—now able to walk out of the dealer store with a small package, instead of needing a salesman to load big bags into the trunk of a car.
- Your brand name is on the best lawn fertilizer made when you produce a balanced mixture containing a high per-

centage of methylene urea. Every ton makes more profits and less work. And satisfied customers will build your tonnage of this premium product.

Get Ready For Fall

Now is the time to prepare for this fall as well as for '62. You can concentrate on the turf and lawn market. It's the big one. Lawn fertilizers sell well in the fall and you can get your tonnage made now for fall and spring, ahead of your rush on regular business. Just work out a high-nitrogen mixture made with ARCADIAN nitrogen materials, designed specifically for this use, along with your normal sources of phosphorus and potash. Your Nitrogen Division technical representative can help you prepare for manufacturing and marketing. Now is the time to see him for detailed suggestions on how to make money with a product designed for this market. Write now to Nitrogen Division, Allied Chemical Corporation, 40 Rector Street, New York 6, N. Y.

Make premium grades at low cost with DURANA

If you are interested in the production of tobacco fertilizers, specialty fertilizers or other premium-grade fertilizers containing nitrate nitrogen, ammonia nitrogen and water-insoluble organic nitrogen, it will pay you to investigate DURANA Nitrogen Solution.

DURANA supplies all these forms of nitrogen economically in one ammoniating solution containing a total of 37% nitrogen. The chemical composition and physical properties of DURANA Nitrogen Solution are shown in the table on the following page.

Organic Nitrogen

Through the proper use of DURANA in manufacturing complete fertilizer, approximately 20% of the total nitrogen from the solution is converted to water-insoluble organic nitrogen in the process of producing the fertilizer. As shipped, DURANA supplies approximately 25%

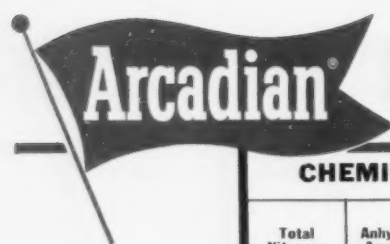
of its total nitrogen as nitrate nitrogen and 55% as ammonia nitrogen.

The agronomic value of nitrate, ammonia and organic nitrogen in fertilizers is well established. In addition to providing these three forms of nitrogen economically, DURANA also helps give fertilizers excellent mechanical condition and facilitates the production of granular-type fertilizers.

Exclusive Product

DURANA Nitrogen Solution is produced and sold exclusively by Nitrogen Division, Allied Chemical Corporation. It is a product of Allied Chemical research—the research that continues to help you produce better fertilizers at lower cost. For information about DURANA and other ARCADIAN Nitrogen Products, contact Nitrogen Division, Allied Chemical Corporation, 40 Rector Street, New York 6, N. Y.

"ARCADIAN", "NITRANA", "URAN", "FERAN", "A-N-L", "N-dure", "U-A-S", and "DURANA" are trade-marks of Allied Chemical Corporation.



NITROGEN SOLUTIONS

	CHEMICAL COMPOSITION %					PHYSICAL PROPERTIES			
	Total Nitrogen	Anhydrous Ammonia	Ammonium Nitrate	Urea	Water	Neutralizing Ammonia Per Unit of Total N (lbs.)	Approx. Sp. Grav. at 60°F	Approx. Vap. Press. at 104°F per Sq. In. Gauge	Approx. Temp. at Which Salt Begins to Crystallize °F
NITRANA®									
2	41.0	22.2	65.0	—	12.8	10.8	1.137	10	21
2M	44.0	23.8	69.8	—	6.4	10.8	1.147	18	15
3	41.0	26.3	55.5	—	18.2	12.8	1.079	17	-25
3M	44.0	28.0	60.0	—	12.0	12.7	1.083	25	-36
3MC	47.0	29.7	64.5	—	5.8	12.6	1.089	34	-30
4	37.0	16.6	66.8	—	16.6	8.9	1.184	1	56
4M	41.0	19.0	72.5	—	8.5	9.2	1.194	7	61
6	49.0	34.0	60.0	—	6.0	13.9	1.050	48	-52
7	45.0	25.3	69.2	—	5.5	11.2	1.134	22	1
URANA®									
6C	43.0	20.0	68.0	6.0	6.0	9.3	1.180	12	39
6M	44.0	22.0	66.0	6.0	6.0	10.0	1.158	17	14
10	44.4	24.5	56.0	10.0	9.5	11.0	1.114	22	-15
11	41.0	19.0	58.0	11.0	12.0	9.2	1.162	10	7
12	44.4	26.0	50.0	12.0	12.0	11.7	1.087	25	-7
13	49.0	33.0	45.1	13.0	8.9	13.5	1.033	51	-17
DURANA®									
DURANA contains 8% formaldehyde.	37.0	13.3	53.4	15.9	9.4	7.2	1.235	0	36
U-A-S®									
A	45.4	36.8	—	32.5	30.7	16.2	0.932	57	16
B	45.3	30.6	—	43.1	26.3	13.5	0.978	48	46
Anhydrous Ammonia	82.2	99.9	—	—	—	24.3	0.618	211	-108

Other ARCADIAN® Products: URAN® and FERAN® Solutions • Ammonia Liquor • N-dure® A-N-L® • Ammonium Nitrate • UREA 45 • Nitrate of Soda • Sulphate of Ammonia

When you purchase your nitrogen requirements from Nitrogen Division, Allied Chemical, you have many different nitrogen solutions from which to select those best suited to your ammoniation methods and equipment. You are served by America's leading producer of the most complete line of nitrogen prod-

ucts on the market. You get formulation assistance and technical help on manufacturing problems from the Nitrogen Division technical service staff. You benefit from millions of tons of nitrogen experience and the enterprising research that originated and developed nitrogen solutions.

NITROGEN DIVISION

MAIN OFFICE: 40 RECTOR ST., NEW YORK 6, N. Y., PHONE HANOVER 2-7300



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 Ironton, Ohio, P. O. Box 98 Drexel 7-4366
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 San Francisco 4, Cal., 235 Montgomery St. Yukon 2-6840

Every psychologist—and educator, too—knows that the best time to establish a firm and enduring conviction in the human mind is when that mind is young and impressionable. While we in the fertilizer industry have not as a group progressed to the stage of educating our future customers (perhaps we're still too busy trying to influence today's consumers), at least one school-teacher has initiated a program in our behalf, and in behalf of the youngsters who look to her for development of their alert young minds. Here, in her own words, is a description of the plan followed by this small-town Maryland elementary school teacher.

Second-graders learn

“Plant foods make 'em BIG”

The title was a remark from a young grade-school pupil who had seen the evidence produced by using plant food, and he was most impressed. Likewise, were his classmates. The children were in a second-grade class, and the unit of study in science was “how plants live and grow.” The children and teacher had experimented in seeing just how plants do live and what their needs are.

New to the children, and answering their numerous questions about plant needs for growth, were the ideas of soil testing and soil feeding for better plants. The children fed one potted plant with plant food; the other received none. They were astonished that the results proved that plant food *does* make plants grow to their very best, and that lack of proper plant foods means poor, undernourished, “starved” plants. They listed ten plant foods. After a visit to the garden supply store, they learned to identify by the formula on packages how fertilizers are made up.

Some delving into books and other literature showed some very unusual facts that surprised the pupils. They learned that a hundred bushels of corn take from the soil 148 pounds of nitrogen, 23 pounds of phosphorus, and 71 pounds of potassium. And, that those materials must be returned to the soil before a new crop could be grown. Testing their school garden soil, they learned of the elements lacking, and supplied them. Thus, they put their learnings into practice.

Inquiries from local farmers and

parents with gardens proved more people need to know and apply the plant foods now available. The children grew to respect the advances of modern chemistry and biology, which allow us to know what soils require so plants may, as one youngster said, “eat well and grow hearty.” The pupils’ bulletin display board showed a most unusual picture—a cover off a “Bugs Bunny” comic, showing his largest carrot to be the one to which he had been applying plant food, as needed.

The children likened poor soil to growing of frail, undernourished children. Other pupils decided to get their parents to test the soil, and “grow fine specimens for the table, and for the State fair.” The children, even at such a young age, were cognizant of the fact that plant food “pays off.” They were most impressed to learn that America has wasted about 50,000,000 acres of soil by wearing it out, and not replenishing the soil with proper plant foods.

During in-school attentions to the importance of plant food, the children learned new words, and used them meaningfully: fertilizer, plant food, nourish, potassium, calcium, nitrogen, phosphorus, carbon, hydrogen, oxygen, iron, sulfur, magnesium, etc. They looked at fields where erosion had robbed the soil of essential food elements, too.

It is hoped that more and more teachers and youngsters will include plant foods and their uses into their units of study, as young Americans of today are the farmers (and homeowners) of tomorrow.



This is the simple but effective demonstration used by this Maryland schoolteacher to impress upon her pupils the importance of nutrients in plant growth.



This colorful presentation, centered around cartoon idol ‘Bugs Bunny’ and the giant carrot which plant food produced for him, will remain in the minds of the children who saw it for many years to come.

More detail in new manual on Chemical Analysis for fertilizers

by VINCENT SAUCHELLI
Chemical Consultant
National Plant Food Institute

As one more phase of National Plant Food Institute's concern with the "losses" to the fertilizer industry in formulation overages, the NPFI Chemical Control Committee has prepared and the Institute is issuing a Manual of Recommended Methods of Chemical Analysis. This Manual comprises the official methods of the AOAC re-written in more detailed form and representing the composite experiences of a score of competent chemists in the fertilizer industry. The Institute is releasing the first edition immediately.

The AOAC methods are written for experienced, graduate chemists. Because of space limitation in the AOAC book of methods, the authors have had to write the procedures in short, condensed form that makes uniform interpretation difficult even for experienced analysts. In most analytical laboratories today inexperienced chemists or technicians do most of the analytical work owing to a shortage of experienced analysts and for economic reasons. Although technicians are good at the jobs assigned them, many lack appreciation for some of the chemistry involved in the procedures. The addition of many new fertilizer materials to the industry's supply of nutrient carriers is one more reason for the appearance of the NPFI Manual, because official methods have not yet been developed for some of them.

Surveys carried out by NPFI have revealed that laboratories varied extensively among themselves in methods of analysis particularly when all minor variations are considered. Hence, another reason for the NPFI Manual is to enable laboratories to achieve a higher degree of reproducibility and accuracy in their analytical work. The more detailed write ups of the methods should enable laboratories, analyzing the same material, to follow the prescribed procedure more rigidly and thus obtain analyses that more reasonably correspond.

The preparation of the NPFI Manual was prompted by requests from several member firms having

laboratory facilities. They also urged that the style to be followed in the written procedures should be simple and detailed without sacrificing accuracy and precision in the analyses.

The problem of quality control in fertilizer manufacture has been present with the industry from its inception over a century ago. Committees of the American Chemical Society and of the Association of Official Agricultural Chemists (AOAC) have joined industry chemists from time to time to investigate and improve methods of sampling and analysis. Since every State has a chemical control agency to sample and analyze fertilizers marketed within its borders, it became necessary to have dependable methods of analysis that could give reasonably accurate results. All reputable manufacturers have been and are anxious to help these control officials in the improvement of sampling and analytical techniques. NPFI shares in this same desire to cooperate with state and national groups. The committee has kept the AOAC informed of the purposes and scope of the Manual and have had their approval in this undertaking.

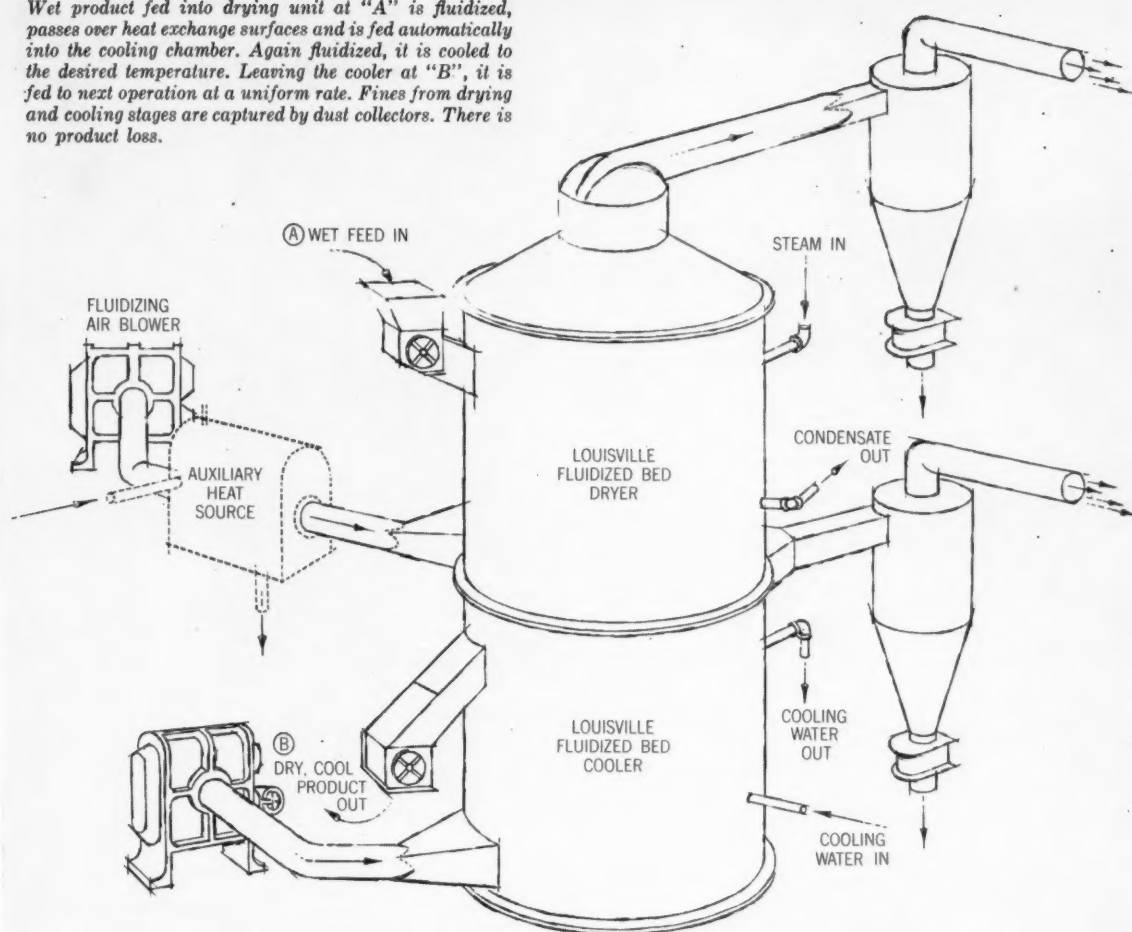
NPFI released in November 1960 its comprehensive study of sampling and analysis of bagged fertilizer. One of the disclosures of that study was that variation among laboratories existed to a significant degree. This pointed up the need for action that could lead to more uniform techniques and a high degree of reproducibility of analytical results. The preparation of the NPFI Manual is intended as one aid in reducing variability among laboratories. If chemical control techniques can be stated so as to make uniform interpretation easier, it is believed the manufacturer will not have to overformulate as at present to assure himself of escaping penalties. Analytical methods being empirical it is necessary that the procedures should be scrupulously followed by the analysts. The composition of a fertilizer mixture must conform to a specified analysis within close tolerances. The lower limit is the tolerance per-

mitted by the fertilizer control law; the upper limit is set by the manufacturer. At present most, if not all, firms follow a wide upper limit or 'overrun' which, in the totality for the industry, represents annually a loss of \$6 to \$8 millions. It is difficult to produce a mixed fertilizer with a composition which conforms exactly with its guaranteed analysis. To avoid penalties and keep his reputation for quality goods the manufacturer is almost forced to overformulate and suffer the high cost of the 'overruns.' If the procedures and techniques used by his laboratory and that of the State Control Agency are uniformly interpreted by the analysts of the respective laboratories, it is believed less variation will occur in the analytical results. Less dependence on 'overruns' and more on accuracy and precision in the laboratory will lead eventually to savings in overages. This is one goal the NPFI Manual aims to achieve.

NPFI recognizes the valuable work of the authors of its Manual and is grateful to those companies which permitted their chemical staffs to devote the time and effort to this task. The first meeting of the Task Force organized for the purpose met in Washington on December 2, 1959 under the chairmanship of Vincent Sauchelli, NPFI chemical technologist. The men represented competent chemists from firms engaged in the manufacture of liquid nitrogen materials and solid fertilizers. That they were able to accomplish the task assigned them within less than 15 months is most commendable. The Task Force comprised the following men and their affiliations: Ben T. Anderson, Sinclair Petrochemicals, Inc.; J. R. Archer, International Minerals & Chemical Corp.; A. T. Blackwell, Davison Chemical Co., Div. W. R. Grace & Co.; T. J. Bosman, Federal Chemical Co.; J. H. Carnett, Texaco, Inc.; Robert J. Church, E. I. du Pont de Nemours & Co.; C. B. Collard, Phillips Chemical Co.; W. R. Deitz, U. S. Industrial Chemicals Co.; Paul A. Demkovich, American Oil Co.; G. Conner Henry, Law & Co.; R. L. Jones, Armour Agricultural Chemical Co.; E. L. Nelson, Allied Chemical Corp.; Carrol H. Perrin, Canada Packers, Ltd.

Paul R. Rexroad, Farm Bureau Cooperative Association, Inc.; E. W. Roberts, Spencer Chemical Co.; R. C. Rund, Swift & Co.; C. H. Russell, Monsanto Chemical Co.; Jack D. Slater, John Deere Chemical Co.; J. A. Smith, Sohio Chemical Co.; and William J. Tucker, G.L.F. Soil Building Service.

Wet product fed into drying unit at "A" is fluidized, passes over heat exchange surfaces and is fed automatically into the cooling chamber. Again fluidized, it is cooled to the desired temperature. Leaving the cooler at "B", it is fed to next operation at a uniform rate. Fines from drying and cooling stages are captured by dust collectors. There is no product loss.



Major Break-Through in Drying and Cooling Techniques for Prilled and Granulated Fertilizers Announced by **GENERAL AMERICAN**

A new system for drying and cooling ammonium nitrate prills, urea prills and granulated mixtures has been perfected by General American through their development of Louisville Fluidized Bed* Equipment. Vertically coupled units functioning as a two or three stage dryer and cooler provide a continuous operation. Dust losses due to attrition are negligible as the material is cushioned by the fluidizing air. High heat transfer permits lower operating temperatures, preventing case hardening and resultant locked-in moisture.

*Patents Pending

For full details about this revolutionary development in drying techniques, write for bulletin #FBD-61

Louisville Fluidized Bed equipment offers these advantages:

1. Accurate, instantaneous temperature control
2. High heat transfer that permits compact design
3. Low maintenance costs (no moving parts)
4. Less cleaning time and labor
5. Less floor space (equipment is vertical)
6. No hot spots (product is fully protected)

Because of their simplicity, Louisville Fluidized Bed dryers and coolers adapt readily to complete automation.

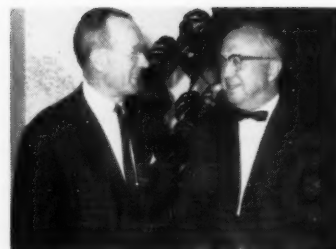
Process Equipment Division—Louisville Dryers
GENERAL AMERICAN TRANSPORTATION CORPORATION

135 South LaSalle Street
Chicago 3, Illinois
Offices in principal cities



officers, directors decide

Plant Food Institute will continue program of regional support to the industry



Paul Truitt, president of National Plant Food Institute, and new N.P.F.I. Board Chairman John W. Hall, Potash Co. of America, Denver.

"There will be no major changes in the program of the National Plant Food Institute for the fiscal year 1961-62," John W. Hall, newly-elected chairman of the board of directors of the Institute, announced June 14, following adoption of the budget at the close of the N.P.F.I. convention.

"There have been some rumors and much mis-information concerning the course of the Institute as the result of some reduction in the budget, but these reductions will not impair the program for the organization or result in any de-emphasis of the traditional support and cooperation that the Institute has been privileged to enjoy with the land-grant colleges, agricultural workers, and others concerned with a sound agriculture," he said.

Mr. Hall said that the organization "will continue to place appropriate emphasis in four primary fields of activity: (1.) Legislation and Administrative Work with Federal and State Agencies; (2.) Publicity and Public Relations; (3.) Broad Market Promotion, including agronomic activities and continued cooperation with State and local officials in their Intensified Soil Fertility Programs; (4.) Maintain Liaison and Service to Members."

He said that some reduction in personnel will be necessary under a reduced budget, but that "the regional approach to the problems of the industry and agriculture will be continued, largely within the present operational framework."

"We have a staff headed by Paul T. Truitt, president, that is dedicated to the task of expanding the market for fertilizer in keeping with the recommendations of land-grant colleges, and we are confident that their efforts in the year ahead will continue to be productive in the best interests of the membership,

the entire fertilizer industry, and in the best interests of a sound agricultural program."

The Institute's board of directors had just elected Mr. Hall, president of Potash Co. of America, Denver, Colo., as chairman, and Elwood I. Lentz, vice president and general manager of Western Phosphates, Inc., Salt Lake City, Utah, as vice chairman of the board, at the conclusion of the 3-day convention.

Other officers of the Institute, all of Washington, D. C., were re-elected: Paul T. Truitt, president; W. R. Allstetter, vice president; Louis H. Wilson, secretary; and William S. Ritnour, treasurer.

Executive Committee

Members of the executive committee elected by the board are: J. C. Denton, president of Spencer Chemical Co., Kansas City; James F. Doetsch, president of Chilean Nitrate Sales Corp., New York; Mr. Hall; Joseph J. Lanter, president of Central Farmers Fertilizer Co., Chicago; Mr. Lentz; William E. McGuirk, Jr., president of Davison Chemical Division of W. R. Grace & Co., Baltimore; C. T. Prindeville, vice president of Swift & Co., Chicago; E. N. Shelton, vice president of Tennessee Corp., New York; Fred J. Woods, president of Gulf Fertilizer Co., Tampa, Fla.; and Mr. Truitt (ex officio). J. D. Stewart, Jr., retiring chairman of the board and president of the Federal Chemical Co., Louisville, Ky., remains on the committee as an advisory member.

New Directors

At the business meeting on June 12, members of the Institute elected 12 new members to the board for terms expiring in June, 1964: Willard Ashburn, Smith-Douglass Co., Norfolk, Va.; Thomas W. Childs, Southwest Potash Corp., New York; Howard J. Grady, California Chem-

Key to pictures →

1. John B. Clopton, Escambia Chemical Corp., New York; T. V. Hough, Kershaw Oil Mill, Kershaw, S. C.; and Mr. & Mrs. Jim Hunter, Escambia Chemical Corp., Atlanta.
2. J. K. Sparkman, Barney Tatum and C. E. Workman, all with U. S. Phosphoric Products, Tampa.
3. Wayne H. Shidaker, Farm Bureau Coop. Assn., Columbus, Ohio, and John Porter, G.L.F. Soil Bldg. Service, Ithaca, N. Y.
4. Representative Harold D. Cooley of N. C., Washington, and Jack Criswell, Agricultural Ammonia Institute, Memphis.
5. Mr. & Mrs. Willard M. Fifield, University of Florida, Gainesville, and Fred Woods, Gulf Fertilizer Co., Tampa.
6. Dr. & Mrs. W. H. Garman, National Plant Food Institute, Washington; Dudley George, Richmond Guano Co., Richmond, Va., and Page Morris, Duval Sulphur & Potash Co., Houston.
7. E. N. Shelton, Tennessee Corp., New York; Howard Grady, California Chemical Co., Richmond; W. E. Shelburne, Armour Agricultural Chemical Co., Atlanta; and W. F. Price, Swift & Co., Chicago.
8. Murray Klopfenstein, South Bend, Ind., and George W. Day, Chicago, both with American Oil Co.
9. Mrs. Jim Menn; Mr. & Mrs. Ed Kingsbury, Kingsbury & Co., Indianapolis; Jim Menn, Madison, Wisc.
10. K. B. Stuart, Colodaro Fuel & Iron Co., Denver; R. C. Dellinger, Best Fertilizers, Inc., Lathrop, Calif.; George Klein, Davison Chemical Div., W. R. Grace & Co., Baltimore.
11. Tom E. Camp, Jr., Southwest Potash Corp., New York; A. B. Verdery, Olin-Mathieson Chemical Corp., Baltimore; and Cecil Inglett, Inglett Development & Engineering Associates, Augusta, Ga.
12. Dr. Robert L. Beacher, National Plant Food Institute, Atlanta; G. A. Wakefield, Olin Mathieson Chemical Corp., Little Rock.
13. Mr. & Mrs. Sam Shelby, Federal Chemical Co., Louisville; Tom Athey, Raymond Bag Corp., Baltimore; Jim Greene, Raymond Bag Corp., Louisville.
14. John Perryman, R. D. Cole Mfg. Co., Newnan, Ga., and Tom Wright, Texas Farm Products Co., Nacogdoches, Texas.
15. Mr. & Mrs. Don Fangmeyer, Northern Chemical Industries, Searsport, Maine, and Tom Cox, American Cyanamid Co., New York.
16. Ralph Boynton, U. S. Borax & Chemical Corp., New York; Hugo Reimer, U. S. Borax & Chemical Corp., Los Angeles; and John Watt, Armour Agricultural Chemical Co., Atlanta.
17. Warren Dewlen, and Cleve McCarthy, both with Consumers Coop. Assn., Kansas City; and Larry Kyle, Farm Bureau Coop. Assn., Columbus, Ohio.
18. John Mahan, U. S. Dept. of Agriculture, Washington, and Bert Tucker, Sohio Chemical Co., Lima, Ohio.
19. Mr. & Mrs. Harold Krueger, Stedman Foundry & Machine Co., Aurora, Ind., and Dick Powell, International Minerals & Chemical Corp., Skokie, Ill.
20. Walter G. Bram, Smith-Douglass Co., Norfolk, and Jack Bryant, Phillips Petroleum Co., Tampa.
21. John Moore and T. W. Oliver of Atlanta and Bernie Machen of Crystal City, Mo., all with Armour Agricultural Chemical Co.



—Plant Food Institute

ical Co., Richmond, Calif.; Robert U. Haslanger, Escambia Chemical Corp., New York; Stanley Learned, Phillips Petroleum Co., Bartlesville, Okla.; Fred L. Litty, Northern

Chemical Industries, Baltimore; Edwin Pate, Dixie Guano Co., Laurinburg, N. C.; B. P. Redman, Jr., Farmers Fertilizer Co., Columbus, Ohio; Charles H. Riley, G.L.F. Soil Build-

ing Service, Ithaca, N. Y.; J. W. Rutland, Western Carolina Phosphate Co., Waynesville, N. C.; William C. Stark, Atlantic Fertilizer Corp., Riverhead, N. Y.; Thomas M. Ware,

1. W. R. Morgan, Hydrocarbon Products Co., New York; Gene Van Deren, Bluegrass Plant Foods, Cynthiana, Ky.; and George H. Aber, Marion Plant Life Fertilizer Co., Marion, Ohio.

2. Mr. & Mrs. Bruce Cloaninger, Association of American Fertilizer Control Officials, Clemson, S. C., and Mrs. John Mahan, Washington.

3. Michael V. Bazilli, Lely Ltd., Burlington, Ont., Canada; George Serviss, G.L.F. Soil Bldg. Service, Ithaca, N.Y.

4. Gordon Cunningham (right), Tennessee Corp., Atlanta, horseshoe singles winner, is congratulated by runner-up William A. Nist, Dayton Fertilizer Corp., Dayton, N. J.

5. Mr. & Mrs. Ben McCollum, J. R. Simplot Co., Pocatello, Idaho, and Mrs. Louis Wilson, Washington.

6. Jack Criswell, Agricultural Ammonia Institute, Memphis, and Loyal Swanson, Texaco Inc., Chicago.

7. Mr. & Mrs. Leroy Donald, Monsanto Chemical Co., St. Louis; Mr. & Mrs. Howard Campbell, National Association of County Agricultural Agents, Mineola, N. Y.; and Warren Huff, Ashcraft-Wilkinson Co., Columbus, Ohio.

8. W. L. Garman, Best Fertilizers, Inc., Lathrop, Calif., and Malcolm H. McVickar, California Chemical Co., Richmond, Calif.

9. Tom E. Camp, Jr., Southwest Potash Corp., New York, and W. W. Venable, Corland Plant Foods, Grinnell, Iowa.

10. Mr. & Mrs. George Walton, Tennessee Corp., Cincinnati.

11. A. J. Dirksen, American Potash & Chemical Corp., New York, and Edwin C. Aylward, Aylico Chemical Co., Sullivan, Ill.

12. Mr. & Mrs. Walter Sackett, Jr., and Walter Sackett, Sr., all with A. J. Sackett & Sons Co., Baltimore.

13. Jeff Stewart, Federal Chemical Co., Louisville, and Mr. & Mrs. Jim Menn, Madison, Wisc.

14. Mrs. Russell Coleman, Washington, and Mr. & Mrs. D. H. Banks, Banks Fertilizer Co., St. Matthews, S. C.

15. Raymond Cartledge, Cartledge Fertilizer Co., Cottondale, Fla.; C. G. Thompson, Western Carolina Phosphate Co., Waynesville, N. C.; and John Cox, Continental Can Co., Birmingham.

16. Loy Everett, Commercial Solvents Corp., New York; John Zigler, International Minerals & Chemical Corp., Skokie, Ill.; and Tracy Adcock, Swift & Co., Chicago.

17. Sam Nevins, Olin-Mathieson Chemical Corp., Little Rock, and Lowell Berry, Best Fertilizers, Inc., Lathrop, Calif.



International Minerals and Chemical Corp., Skokie, Ill.

Nearly 800 fertilizer manufacturers and their suppliers, along with agricultural, business and government authorities attended the sixth annual convention of the Institute, at The Greenbrier, White Sulphur Springs, W. Va., June 11-14.

The business meeting was held Monday, with J. D. Stewart, Jr., 1960-61 chairman of the board, presiding.

Paul T. Truitt, Institute president, presided at both program sessions.

Soil Management Awards

Scrolls were presented by Mr. Stewart to the winners in the 'Soil Management Award for Editors' contest on Tuesday.

Dick Hanson, editor of *Successful Farming*, Des Moines, received the award for magazines of more than 300,000 circulation. Ferdie J. Deering, editor of *The Farmer Stockman*, Oklahoma City, was winner among magazines with less than 300,000 circulation. Awards are based on "superior journalistic contributions in the important field of building our Nation's soils."

Economist

Initial Speaker at the opening session was Dr. Pierre A. Rinfret, vice president and director of the Economics Division of Lionel D. Edie & Co., New York City, who told the group that: "The American economy has weathered the recession" and "new economic records are going to be made in the balance of this year."

The nationally-known economist developed his ideas about the 'longer term' outlook for the American economy, during the next five to ten years.

Describing the "new ground rules for economic growth," Dr. Rinfret listed six major changes currently taking place in the economy which are transforming the nature of our economic system: the age structure of the population is changing with the younger age group growing by leaps and bounds, industry is changing its capital spending programs by putting an increasing part of its capital into research and development, industry is trying to reduce its capital investment in inventories, the consumer is changing his tastes, new industrial frontiers are emerging and, finally, the international position of the U. S. has changed.

"We are in the midst of profound and far-reaching changes in our



PAST PRESIDENTS, CHAIRMEN HONORED

Past presidents and board chairmen of N.P.F.I. received framed certificates: Richard E. Bennett, Farm Fertilizers, Inc., Omaha; Edwin Pate, Dixie Guano Co., Laurinburg; Dudley George, Richmond Guano Co., Richmond, Va.; and J. D. Stewart, Jr., Federal Chemical Co., Louisville; Paul Truitt (right), N.P.F.I. president, awarded the plaques.

economic structure" which are "slowing down our economic growth and we will continue a slow rate for another few years. After 1965, however," Dr. Rinfret said that he expects the economy "to accelerate its growth curve."

"The anatomy of growth of American industries is changing," he continued. "The growth industries of the past fifteen years will not be the growth industries of the next ten years . . ."

"We have not lost our momentum," he said. "We are merely regrouping our forces for major technological breakthroughs in the latter part of this decade. We are on the verge of a technological explosion that will astound the world. The strength, resiliency, and courage of the American economic system will continue to be a bulwark in the world fight for freedom."

Agriculture Secretary

Secretary of Agriculture Orville L. Freeman said "Right now, the American farmer is in trouble."

"In 1960, when the per capita income of our non-farm population averaged a relatively whopping \$2,282, the income of farm people averaged \$986," Mr. Freeman noted. "Farm labor brought 82 cents an hour, in shocking contrast to the \$2.29 earned by the average factory worker and the \$1.15 minimum wage now prescribed by law. This critical disparity has been accentuated by rising costs of production and greater demands for capital investment. The farmer finds himself today almost literally in the position of having to spend more and more to earn less and less—and any producer in

that situation is certainly in trouble."

The Secretary expressed confidence "that this administration is going to have the cooperation of Congress in its efforts to get at the root of this basic maladjustment in our economy."

Mr. Freeman said the whole purpose of the agricultural legislation proposed by the Kennedy administration is to raise farm income to an equal level with other sectors of the economy.

In commenting on the omnibus farm bill, he pointed out that the administration's position was not rigid and that he welcomed proposed changes from members of Congress.

He stressed that the bill "does not arbitrarily impose any program on any producer, it does not establish agricultural programs," but rather "sets up procedures and guidelines under which programs can be worked out for all commodities—if, and only if, producers want them."

The Secretary also commented on a trouble "of another kind" which is plaguing farmers, "public relations trouble." He called on members of industry "to help get the picture of American agriculture in proper focus" so the farmer won't be derided as the creator of surpluses and the recipient of subsidies.

Farming Future

Willard M. Fifield, provost for Agriculture at the University of Florida, told the convention that "the core of agriculture in future years will be management."

Speaking on 'Coming Develop-

—Plant Food Institute

ments in Farming,' which "probably will occur during the next 25 years," the Florida educator said that:

"Management is the whole process of adjusting to change through decision making, action and follow-up. Management is therefore not possible unless there are sources of knowledge and means of control . . . there will be great gains in knowledge and means of control. Improved means of measurement will mean that rates of growth of both animals and plants will be measured quite accurately, he said, and the finished products will therefore be more uniform in quality, and the quantity will be more controllable. Through better means of measurement, we will be better able to determine how much of each commodity we will need and what resources will be required to attain the goals. The use of resources will be better arranged and more efficient. For example, land-use planning and resulting zoning laws will help determine where crops will be grown.

"It appears quite certain that there will be more centralized control and direction. Much of this will be done by government. But much of it can also be done by producing and marketing groups if they are vigorous and farsighted. For example, zoning and public health regulations will fall under the purview of government; the establishing of production goals and efforts to fulfill those goals and many efforts for regulating and promoting orderly marketing can come under the province of producing and marketing groups. Insofar as non-governmental groups fail in those efforts, government will enter the picture. The real problem may be how to maintain a satisfactory degree of freedom and democratic control as more and more power is given to government to 'promote the general welfare.' We may expect some form of farm program to be continued, including payments possibly above market price levels on a commodity basis.

"With the rapid economic growth in the United States, agriculture will become less important dollar-wise in relation to the whole economy. As average incomes increase, great pressure will exist for higher individual farm net income. Farmers will expand the total size of their businesses greatly to expand income. The necessity of this expansion together with the revolutionary discoveries and inventions will greatly increase the need for capital

both for long-term investments and operating expenses. Management and marketing will become much more important as size of businesses increases. Farmers will specialize in one or two enterprises not only because this is the easiest from the management standpoint but also because it will be possible to grow the same crop on the same land year in and year out.

"Even though there will be great pressure to enlarge the size of farming operations and all farms will be large by today's standards, farms will tend to fall into two broad categories: (1) the very large farms with high capital investments and automation and (2) relatively smaller farms with highly skilled managers and much lower capital investments. The relatively smaller farms will be more efficient than the large farms, but their net income will be less. Smaller farms will use more custom work, such as spraying, fertilizing, planting and harvesting.

"By 1985 farmers will be better organized as a group (through both cooperative and political action). Farmers will plan their operations with computing equipment for determining production goals, what factors to use and how much, shortages, best crops for specific seasons, best marketing methods, and most any phase of production and marketing one can think of. There will be commodity committees to plan production and marketing. Production and marketing will be integrated so that production will be kept in better balance with effective demand. Hence, many of the management decisions will be made by the integrators or industry commodity committees.

"Profits from farming will increase because of increased efficiency and less competition. The initial cost of starting a farming operation will reduce competition. Farms will be so large that an individual will not be able to own a farm in his lifetime. Hence, different methods of credit and finance will be developed for keeping farms in operation from one generation to the next. Some form of incorporation will evolve.

"The increased cost of marketing will bring pressure for cost-reducing research in that area. Likewise the continued cost-price squeeze on farmers will bring pressure for cost-reducing research in production. Giant strides will be made in each area.

"More emphasis will be placed on

breeding crop varieties for mechanization . . . Most farm land will be leveled to facilitate movement of machinery . . . Soils will be custom rebuilt with the desired properties needed on the individual farm . . . Fertilizer materials will release their nutrients readily to plants but slowly or not at all to leaching and other forms of present nutrient loss. Nearly all cultivated lands and pastures will be irrigated . . . Yields of many field crops may be two to four times present yields per acre."

Extension Future

Henry L. Ahlgren, associate extension director, University of Wisconsin at Madison, said that "Satisfactory opportunities which will provide a good level of living will be available to only about 10 to 15 per cent of rural farms boys. Thus, it will be necessary for most farm boys and girls to make adjustments from farm to non-farm living . . . Part-time farming will increase.

"There will be an increase in the number of businesses supplying materials and services to farmers and in handling, processing and distributing farm products.

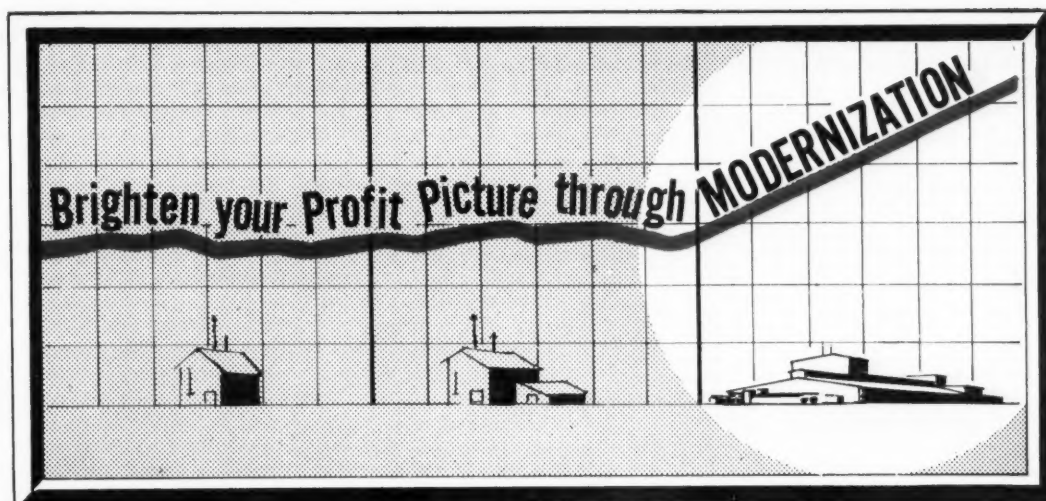
"Vertical and horizontal integration—especially of perishable commodities—will increase . . . Many of the products of agriculture will be produced according to specification and sold under contract . . . Farmers will have increased competition from industry-made substitutes for farm products and from foreign countries.

"The trend in the direction of the merging of rural and urban communities—and which is resulting in large communities—often with no distinct boundaries—will continue . . . More people will live in the country than ever before—but most of them will be non-farmers.

"The 'frontier of the mind' as it relates to agriculture will increasingly replace the 'frontier of geography.' New knowledge—and its application—will be the most important 'commodity' in tomorrow's agricultural world."

Feed Executive

J. E. Streetman, vice president and director of marketing for Ralston Purina Company, St. Louis, Mo., today told audience that "the man who needs our products and your (the fertilizer industry's) products is not going out of business, he's going into a bigger business. His investment is larger, his risks are



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- Bulk Blending Plants

—Plant Food Institute

greater. But this larger, more efficient farmer of today approaches his problems and studies his investments as an industrialist does. He demands of his suppliers technical competence and a clear understanding of his operating problems. As we learn to concern ourselves less

about his size and more about his needs we will earn not only his business but his respect and his loyalty as well. In our industry as I'm sure in yours in the long run, how well we serve will determine how well we prosper."

He said "Dealer Business Man-

agement is a service we offer free to all of our dealers which includes the comprehensive analysis I have described but which goes further and offers the dealer specific recommendations for positive action to correct weaknesses brought to light by the analysis."

1. George L. McGuffey, Sohio Chemical Co., Lima, Ohio; Bob Garn, Central Farmers Fertilizer Co., Chicago; and Al Spillman, Fertilizer Mfg. Cooperative, Baltimore.

2. Mrs. Gordon Cunningham, Mr. & Mrs. Jim Murray, and Gordon Cunningham, all with Tennessee Corp., Atlanta; and Dr. & Mrs. Donald B. Ibach, U. S. Dept. of Agriculture, Washington.

3. Mr. & Mrs. F. E. Best, Spencer Chemical Co., Kansas City; Mr. & Mrs. Tom Campbell, Spencer Chemical Co., Atlanta; and Cecil Inglett, Inglett Development and Engineering Associates, Augusta, Ga.

4. Mr. & Mrs. Harry Carroll, American Potash & Chemical Corp., and Dr. & Mrs. Fielding Reed, American Potash Institute, all from Atlanta.

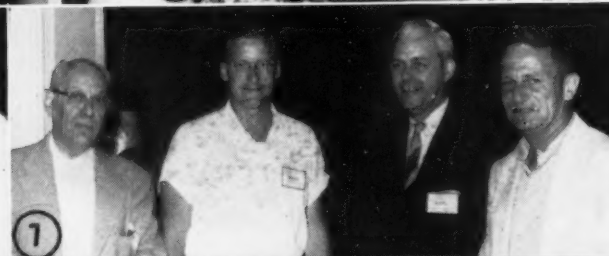
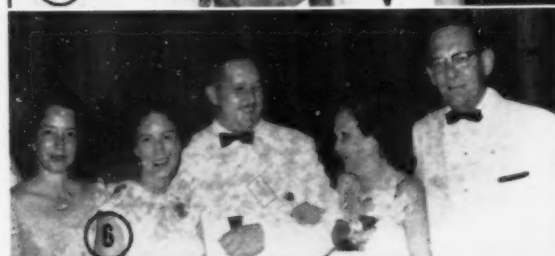
5. George Barley, Diamond R. Fertilizer Co., Winter Garden, Fla.; Mr. & Mrs. Fred Coffee, and Mr. & Mrs. Wallace Hicks, all with Wilson & Toomer Fertilizer Co., Jacksonville.

6. Mrs. Clay Penick, Jr., Atlanta; Mrs. Bert Roper, Winter Garden, Fla.; Michael Bazilli, Lely Ltd., Burlington, Ont., Canada; and Mr. & Mrs. George Barley, Diamond R. Fertilizer Co., Winter Garden.

7. Al Spillman, Fertilizer Mfg. Cooperative, Baltimore; Bill Rohrer and George Klein, both with Davison Chemical Div., Baltimore; and W. F. Jacobi, Union Bag-Camp Paper Corp., New York.

8. Jim Gordon, Cotton Producers Assn., Atlanta; George Kalteissen, and Malcolm Hunter, both with Nitrogen Division, Allied Chemical Corp., New York.

9. Barbara and Bert Roper, Diamond R. Fertilizer Co., Winter Garden, Fla., couldn't leave behind the arrangement of peonies which they enjoyed in their room, so they just loaded it in the car when they left.



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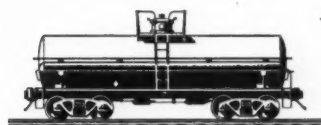
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Escambia Expands, Moves Atlanta Operations

Escambia Chemical Corporation has expanded its Atlanta operations and moved into new and larger quarters at 3330 Peachtree Road, N.E. New phone is 237-2246.

The Atlanta branch will serve as the company's national nitrogen sales office under the direction of James A. Hunter, sales manager for nitrogen products.

The announcement was made by John B. Clopton, vice president and director of sales for Escambia Chemical Corporation, whose headquarters are in New York and whose plant is located at Pace, Florida.

Escambia markets a number of nitrogen products throughout the South, principally ammonium nitrate in prilled and liquid form and ammonia for agricultural use.

Potash Institute Moves Canadian Office

The American Potash Institute's Canadian office has moved to a new location, effective June 8. Mail addressed to the Institute office or to Dr. K. M. Pretty, Canadian director, should be sent to 100 Dixie Road Plaza, Port Credit, Ontario, Canada.

St. Regis Moves Buffalo Office

St. Regis announces that the Bag Division office in Buffalo, New York, is now located at 235 North Street.

W. Eugene Huffman, sales representative, and Elmer Wilke, packaging engineer, are located at this office which serves the Buffalo area.

Cyanamid PO Address Changed in Florida

American Cyanamid Company's Brewster, Florida, post office address has been changed to Bradley, Florida. This does not affect their rail, truck, express and telegraph address, which remains Brewster. The phone number remains Mulberry, Fla., HArrison 9-2501.

TVA Board OK's Fertilizer Plant

For the first time in 20 years, the TVA board has authorized a fertilizer plant—a \$100,000 pilot operation at Muscle Shoals. The new project will seek to bring nearer to commercial production particle-size manufacturing of a wide variety of fertilizers in a granular form.

CHANGES

IMC Will Produce Diammonium Phosphate

International Minerals & Chemical Corporation will add diammonium phosphate to its line of fertilizer ingredients late this year. They will invest \$3.8 million in an expansion project at the Bonnie, Florida, phosphate chemicals plant to manufacture 100,000 annual tons of the new nitrogenous product, according to T. M. Ware, IMC president. Completion is scheduled by October 31.

The new product will contain 18 per cent nitrogen and 46 per cent P_2O_5 . Bonnie currently produces triple superphosphate, superphosphate, phosphoric acid, feed phosphates and sulphuric acid.

Mr. Ware said demand for the recently developed high-analysis diammonium phosphate is growing rapidly, especially in the midwest. He said addition of the product to IMC's list of fertilizer materials would enhance the full line advantages IMC now offers the customer.

NAC Reorganizes Staff

A plan for the reorganization of the National Agricultural Chemicals Association staff was announced by Dr. George R. Ferguson, president of the association, following a regular meeting of the board of directors.

Effective September 1, 1961, the beginning of the association's fiscal year, the Board approved an organization plan providing for a chairman and a vice chairman of the board of directors; a full time president to replace the present position of executive secretary; a secretary; a treasurer; a technical director; and a director of information.

Named by the board of directors to fill these positions were Dr. George R. Ferguson, president of Geigy Agricultural Chemicals, chairman of the board; H. F. Tomasek, president of Chemagro Corporation, vice chairman; L. S. Hitchner, president of the association; Jack Dreessen, secretary; Miss Lee H. Grobe, treasurer; J. A. Noone, technical director; Denis Hayley, director of information.

Producers Supply Makes Name Change

As soon as formalities can be completed, the Producers Supply, Inc., fertilizer manufacturers of Palmetto, Fla., will become the Producers Fertilizer Company. There will be no change in the company as to any of the people connected with the company, either as stockholders, directors, officers, or any of the employees. Nor will there be any change as to policies of the company, and the new company assumes all of the obligations of the original company. The announcement was made last month by J. E. B. Asbell, president of the firm.

Owens-Illinois New Laboratory

A new research and testing laboratory dedicated to the improvement of paper products—from tree to corrugated and solid fibre shipping boxes and multiwall bags—has been opened in Toledo, Ohio, by the Forest Products Group of Owens-Illinois Glass Company.

The new facility, located adjacent to O-I's technical center, ranks as one of the best equipped in the paper industry. Dr. Fred B. Schelhorn, Forest Products Group vice president of applied research and development, said.

Additional personnel and facilities of the company-wide technical center are available to the new group. Service is available from the technical center's machine shop, maintenance, architectural, and analytical departments and from the technical library.

"This laboratory combines all the research and development activities of our Paper Products, Mill and Multiwall Bag divisions to the benefit of all three," Dr. Schelhorn said. "We hope not only to improve the quality of our paper products today, but also to make better use of our woodlands to produce improved paper more efficiently in the future."

The activities of the new unit, Dr. Schelhorn explained, are broken into five major laboratories: quality development, box and bag testing, design engineering, quality audit, and research and development.

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for
going
steady....."



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says Big Chief Kay-Two-Oh. And it's not Minnehaha he has in mind, but YOU, the loyal customers who've re-ordered Potash again for the coming season.

"Moon after moon (Indian bop talk for 'time after time'), paleface buyers prove faithful in ordering from Pee-Cee-A-Tribe. Me heap grateful." That's a long speech for the usually silent Big Chief. It's his way of saying "Thanks" for your contract, and of letting you know that he means to keep your good will by keeping Pee-Cee-A service the best this side of the Happy Hunting Grounds.

In closing the Chief says "How". Which means: if there's any way the Pee-Cee-A scout in your territory can be of service to you, send him a smoke signal and tell him "How".

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ALABAMA

The Tennessee Valley Authority board of directors announced that construction has started on a \$3,000,000 electric phosphorous furnace at Wilson Dam.

The furnace was discussed at the board's first Muscle Shoals meeting in many years.

Officials said the new furnace will incorporate the latest advances in the science of phosphate smelting and will replace several smaller furnaces. It is scheduled to begin operation early in 1963.

CALIFORNIA

Wingate Company, Inc. are under way with construction of their \$150,000 plant where activities will include a sulphur mill and distribution to fertilizer manufacturers in the area. F. E. Wingate is president, with Alex Goorabian as secretary-treasurer. The plant, which is expected to be in operation by mid-July is a new industry for Fresno, but the concern has been in wholesale sulphur there since last August.

FLORIDA

American Cyanamid plans to expand their production of phosphate fertilizer at the Brewster plant were announced by C. D. Siverd, general manager of the agricultural division.

The multi-million dollar expansion will provide facilities for producing 200,000 tons per year of granular triple superphosphate fertilizer. In addition, a new coarse triple superphosphate and an increased supply of run-of-pile material will be available.

The new production capacity is part of Cyanamid's long-term program of expansion to supply manufacturers of high-analysis fertilizers. In 1960, Cyanamid announced plans to double capacity for production of phosphoric acid, which will be completed by mid-1961. A considerable portion of the expanded capacity for acid production will provide the basic ingredient for manufacture of triple superphosphate. The output of the plant will be marketed throughout the United States and abroad.

Equipment and installations will provide the most modern system for control of air pollution. Also involved in the expansion are increased laboratory facilities designed to handle a larger volume of sampling and analyses of products



as a part of Cyanamid's service to customers.

Production utilizing the new installations is expected to begin in early 1962.

* * *

International Minerals & Chemical will build a diammonium phosphate plant and associated facilities at its Bonnie chemical plant at an estimated cost of \$3,800,000.

Construction of the plant for the new product will begin immediately, according to the announcement by Floyd B. Bowen, general manager of IMC's phosphate minerals and chemicals operations.

D. M. Weatherly Co., Atlanta, will be the contractor for the basic production plant. Wellman-Lord Engineering, Inc., Lakeland, will handle the construction of storage, shipping and other facilities associated with the new product.

Bonnie currently produces triple superphosphate, phosphoric acid, dicalcium phosphate for animal feeds, sulfuric acid and fluorine chemicals.

Design of the new process and plant, which will have complete control equipment approved by the state board of health, is such that dust and fume effluents will be at a minimum, Bowen pointed out.

GEORGIA

Virginia-Carolina has deeded, with no strings attached, a 19-acre tract of land in Atlanta to the school system of the city. The tract has railway frontage and will likely be used by the schools as a recreation center and a long-needed warehouse building. The V-C plant on the site was closed in 1957.

Executive vice-president Charles T. Harding of V-C, who presented the deed, explained that the schools offered to buy six acres, so the company donated the whole thing. "We have been in Atlanta since 1885" said Mr. Harding, "when the population was 15,000. Because of our multiwall bag plant there we have a great deal of interest in the city and want to be good citizens.

The board voted unanimously to make the gift."

ILLINOIS

American Oil Company will build at Joliet an anhydrous ammonia terminal to serve nearby areas and throughout the mid-West. It will be set up next to the Amoco Chemical plant on Des Plaines River, and is being constructed by Chicago Bridge & Iron Co. C. J. Struble, manager of American Oil Nitrogen Products Department, says the new terminal storage facilities will permit them to receive, store and reship by rail, water and truck transport on a 24-hour basis, which will be helpful in the peak demand season.

IOWA

Monsanto will build a 15,000 ton anhydrous ammonia terminal on the Mississippi River near Muscatine, on a 500 acre tract which has access to rail and barge shipping from their plants in Arkansas and Louisiana.

KANSAS

Cooperative Farm Chemicals are again expanding their plant at Lawrence. This is the fifth major expansion since it was originally opened. The new facilities will include a 120 daily ton nitric acid unit and a 20,000 ton urea-nitrate storage tank. Chemical Construction will build the acid unit. Darby Corporation will supply the tank.

* * *

Nevada Fertilizer Company, Nevada, Missouri, has opened a branch plant in Iola, where some 15 people will blend and sack fertilizers.

MISSISSIPPI

Mississippi Federated Cooperatives' Macon Industries plant, which went into production early this year making sprayer kits and bulk feed bins, will soon manufacture liquid fertilizers, according to a report from R. E. McCollum, manager of MFC's farm supply department.

MISSOURI

Hercules Powder expects to complete in about a year two new units for manufacture of fertilizer at Louisiana. The first will make 50,000 annual tons of ammonia nitrate solution. The second will produce ammoniated ammonium nitrate. These will augment the output of the plant which opened in 1954.

MONTANA

Consolidated Mining and Smelting of Canada is reported studying the possibility of building near Deer Lodge a \$4,000,000 phosphate plant. Vice President Fred E. Burnett of the Montana Phosphate subsidiary has been quoted recently to this effect.

NEBRASKA

The Elkhorn Valley Cooperative Fertilizer Assn., held an open house at their Wisner plant in early June, with guided tours, coffee and doughnuts. The plant produces blends of liquid fertilizers, prescription and standard grades.

OHIO

Western Farmers Association has begun construction of a new \$200,000 'non-odorous' blending plant near Salem, the first unit of which is expected ready to go about October, according to Russell Rathbone, WFA general manager.

TEXAS

Nitrogen Products Division of W. R. Grace & Co. expect to be in operation early next year with a new plant at Big Spring, which will produce 60,000 annual tons of ammonia. Built next door to the Cosden Petroleum oil refinery, it will be operated by Cosden for W. R. Grace. Foster Wheeler will design and construct the plant, incorporating recent advances in ammonia production technology.

UTAH

San Francisco Chemical Co. is planning five more plants on 27 square miles of land it owns near Vernal, Utah, where it now has an investment of \$5,000,000. The phosphate deposit there is said to be one of the three largest in the world. The company is now producing 12 times as much commercial grade phosphorite as it did 16 years ago, according to Duncan L. King, president.

SF Chemical began with a mine near Montpelier, and now has installations in three states, mining phosphorite in the Georgetown Can-

yon area, near Sage, Wyoming, near Randolph in northern Utah, as well as the Vernal operation.

The concern is owned jointly by Stauffer and the English firm of Mountain Copper Co. Ltd.

AUSTRALIA

Stauffer Chemical is reported expanding production in Australia, and making plans to adapt its farm chemical products to the needs of local agriculture.

Simplot Moving Anaconda Plants

The moving of a complete fertilizer plant more than 250 miles, from Anaconda, Montana to Pocatello, Idaho is in progress, it was announced by W. Grant Kilbourne, general manager of the Minerals and Chemical division of J. R. Simplot Co.

The Austin Co. of Seattle, Washington has contracted to accomplish the gigantic job in 90 days. The task, which might be compared to moving an entire town, will be accomplished by dismantling the modern ammonium phosphate plant, moving the components by truck and rail to the Idaho site and re-erecting the production facilities in new building. Foundations and other prerequisite facilities are now under construction at Pocatello.

A large phosphoric acid plant, which will double the present Simplot capacity, is also under construction to supply the new facility.

The Idaho location for the plant which is being moved is adjacent to the J. R. Simplot fertilizer plant near Pocatello. The ammonium phosphate plant was put into production three years ago by the Anaconda Co. It was purchased by

Simplot and operated one season in Montana before being moved.

It was decided to move and re-construct the plant at Pocatello to integrate fertilizer production facilities for the Minerals and Chemical division. The new location is nearer the supply of raw materials, the phosphatic ore being mined at the Gay Mine near Fort Hall, Idaho and at the Conda Mine near Soda Springs, Idaho.

Materials handling facilities at the former Anaconda triple superphosphate plant will also be moved and incorporated in an expanded Simplot Soilbuilders plant at Idaho Falls according to Mr. Kilbourne.

The moving of office facilities by J. R. Simplot Co. from Anaconda to Pocatello is coincident with the moving of the ammonium phosphate plant.

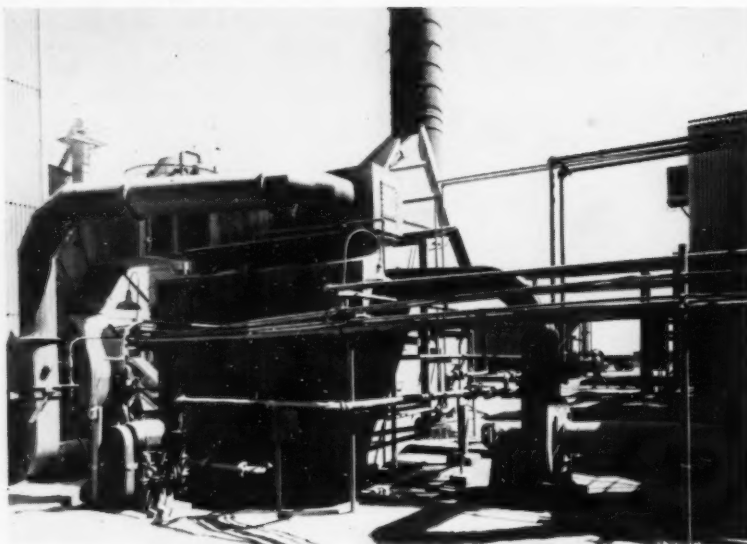
R. A. Jones, formerly manager of Anaconda's fertilizer operations has moved to Saratoga, California where he will continue his employment with Simplot in a sales-advisory capacity.

All business functions associated with the Anaconda fertilizer office will now be conducted in Pocatello.

Top: The ammonium phosphate plant, right, is being moved by The Austin Co. for the Simplot Co., from Anaconda, Montana to Pocatello, Idaho, where it will be re-erected and integrated into Simplot's fertilizer production activities. Materials handling facilities from the former Anaconda triple plant, center, will be moved to Idaho Falls.

Below: Workers construct foundation forms at Pocatello to carry the ammonium phosphate plant. The site of the new plant is adjacent to the Simplot phosphate plant seen in the background.





IMPINGEMENT SCRUBBER AT VALLEY NITROGEN

The big scrubber shown in the above picture is installed at Valley Nitrogen Producers, at Helm, California. The unit shown is a 40,000 CFM unit, handling gases from an ammoniator dryer screen and transfer points dust pickup. The scrubber is a Turbulaire size 4-26 made by Western Precipitation Division of Joy Manufacturing Company and provided with a mild steel shell, rubber lined. The scrubbing liquid is dilute sulphuric acid. The unit was designed to remove 95% of the dust delivered to it with concentrations in the range of 1 to 2 grains per cubic foot and pressure drop, 7" to 9" W. G. The piping for the scrubber is arranged for complete recycle or partial bleed-off. As the concentration of dust and acid builds up in the scrubber liquor, the overflow is directed to the process or to storage. There is a fresh water inlet to balance the bleed-off and this fresh water is introduced through the back of the scrubber or through sprays located over the inlet. The handling of the liquor here is a novel one, since they are able to get either complete recycle, complete bleed-off, or complete flow to storage, accomplishing whatever the needs of the process dictate. Ammonia pickup is good and the stack (except for a steam plume) is virtually clear.

Gas & Fuel Corporation of Melbourne and the German Lurgi group of companies will expand their high-pressure gasification plant, which operates in the famous 'brown coal' field. The plant will then produce fertilizers and by-products.

AUSTRALIA

Imperial Chemical Industries of Australia and New Zealand is taking over Commonwealth Fertilizers and Chemicals as a wholly-owned subsidiary. I.C.I.A.N.Z., already a substantial shareholder in Commonwealth Fertilizers, will now acquire the remaining shares held by Cum-
ing Smith and Company, Mount

Lyell Mining and Railway, and Wischer and Company. These three companies together with Nobel Australasia, a subsidiary of I.C.I.A.N.Z., were the original partners in Commonwealth Fertilizers when it was formed in 1929. The purchase consideration will comprise an unstated amount of cash and the issue of 840,993 new ordinary shares in I.C.I.A.N.Z. to the vendor companies.

AUSTRIA

Austria's chemical industry will be able for the first time, in the 1961-62 farm year, to meet domestic requirements for superphosphate fertilizer by its own production. About

180,000 tons of this fertilizer will be supplied by the Nitrogen Works in Linz, Upper Austria, so that, with another 30,000 tons produced by the Bleiburg Mining Corporation in Carinthia, the total demand in the region of 210,000 tons per year can now be met by domestic manufacture.

CANADA

Electric Reduction Company's multi-million dollar chemical plant at Port Maitland, Ontario, on Lake Erie, is nearing completion. Within the next month, agricultural chemicals for fertilizers and stock foods will begin to flow to markets in Canada, the United States, and overseas.

ERCO's complex of modern chemical plants, in construction for approximately one year now, will produce phosphoric acid and triple superphosphate for fertilizers, and dicalcium phosphate as a mineral supplement for stock foods. Production capacities of these plants will be sufficient to serve more than the present Canadian requirement for these materials, and a portion of the U. S. market as well.

ERCO has been producing single superphosphate for fertilizer use at the plant of its subsidiary, Dominion Fertilizers Company, adjacent to the main ERCO site at Port Maitland.

Phosphoric acid and triple superphosphate will be offered in the U. S. through the Agricultural Chemicals Division of International Minerals & Chemical Corporation.

Triple superphosphate and dicalcium phosphate are not now produced in Canada, and must be imported for Canadian users from the U. S. and Europe. The fertilizer grade of phosphoric acid, phosphatic fertilizer solution, is not now produced in Eastern Canada, although ERCO produces large quantities of electrothermal phosphoric acid, based on elemental phosphorus, for industrial and food grade uses, at its plant in Buckingham, Quebec. ERCO expects to displace a large proportion of the imports of these agricultural products, which amount to several million dollars each year.

These new products have a common starting point in phosphate rock; the rock is treated with sulphuric acid to produce single superphosphate, and with phosphoric acid to produce triple superphosphate. The phosphoric acid itself will be produced at Port Maitland by the 'wet process' method, reacting phosphate rock and sulphuric acid to produce dilute phosphoric
(concluded on page 62)

PHILLIPS EMPLOYING GIANT TANK CARS

This huge, new tank car, whose design breaks all precedent, was delivered to Phillips Petroleum Company. The car swells from a diameter of 99 inches at each end to 118 inches at the midriff. It has a water capacity of 30,300 gallons but is 19 feet shorter than other large-sized tank cars. Next to it is the smallest tank car in general use today, with only a 4,000 gallon capacity. The car is the first of 10 built and offered for lease by General American Transportation Corp. In addition, Phillips has purchased 50 more of the giant cars for hauling anhydrous ammonia and liquefied petroleum gas between manufacturing plants and its large storage points. Use of these cars will permit greater speed and flexibility in delivery of products in comparison with smaller tank cars and barges, Phillips' officials said.



AN IMPORTANT ANNOUNCEMENT FROM ESCAMBIA CHEMICAL CORPORATION

The sale of all nitrogen products produced by Escambia Chemical Corporation is now being handled by our own sales force.

To provide the finest possible service and assistance to our customers, our Atlanta branch has moved into larger quarters and the staff has been greatly expanded. Additionally, Escambia sales representatives are now located throughout the marketing area.

For quality nitrogen products, service you can count on, and skilled technical assistance, call on Escambia.



JAMES A. HUNTER
Sales Manager
Nitrogen Products



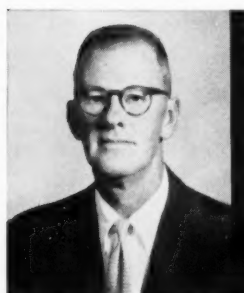
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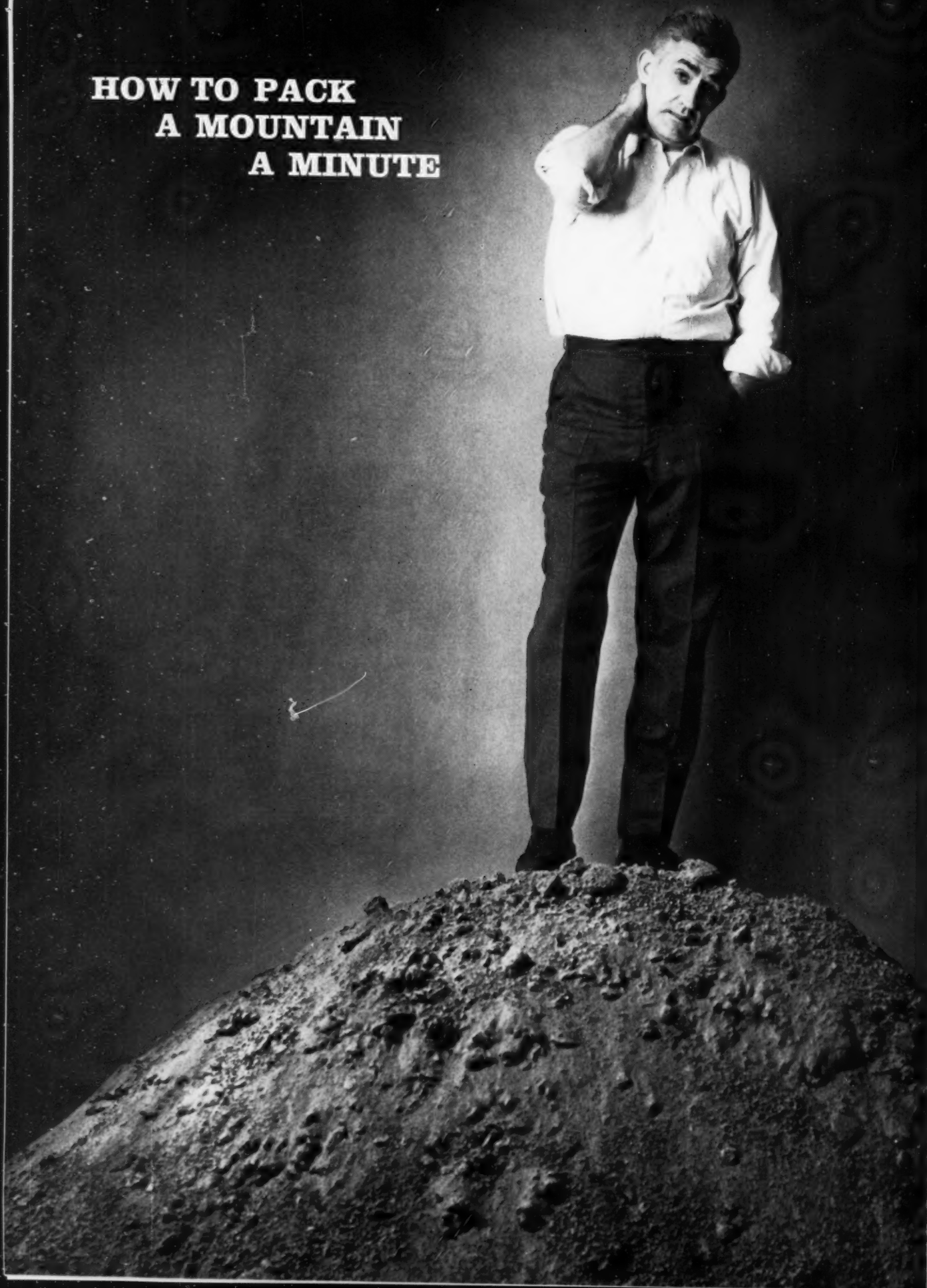
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**HOW TO PACK
A MOUNTAIN
A MINUTE**



The new, low-cost Streamflow Scale packs up to 2400 lbs. a minute

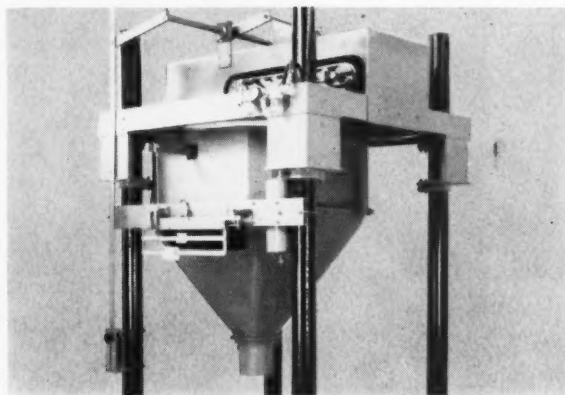
**Rugged, trouble-free St. Regis scale
also permits rapid change-overs**

To meet the demands of peak-season rushes, you need a dependable packaging machine that'll get the tonnage out fast! And now, St. Regis® has a machine that gets the job done . . . the new, low-cost Streamflow Scale. This fully automatic unit gives you high production and truly accurate weights in a rugged machine that's economical to operate and maintain.

In one minute, the Streamflow Scale packs up to twenty-four 100-lb. bags, thirty 50-lb. bags or fourteen 200-lb. bags. What's more, it's easy to change grades and bag capacity.

The simplicity of design of the Streamflow Scale gives you trouble-free operation no matter how big the rush. With rugged construction, simplified controls and extensive use of corrosion-resistant materials, its maintenance remains at a minimum. To get detailed information on how this new scale will get the tonnage out and cut your packaging costs at the same time, contact your local St. Regis representative.

The Streamflow Scale, one of more than 50 St. Regis packaging machines, is the latest example of St. Regis *Packaging-in-Depth*. This complete bag service assures you of the *right* bag, the *right* machinery to pack it, plus skilled engineering services. To meet your *future* needs, it includes research to develop improved packaging methods and economies.



PACKAGING-IN-DEPTH BY
St. Regis  **BAG DIVISION**
PAPER COMPANY

In Canada, contact St. Regis Consolidated Packaging Co., Ltd.

**Indiana
liquid
plant**

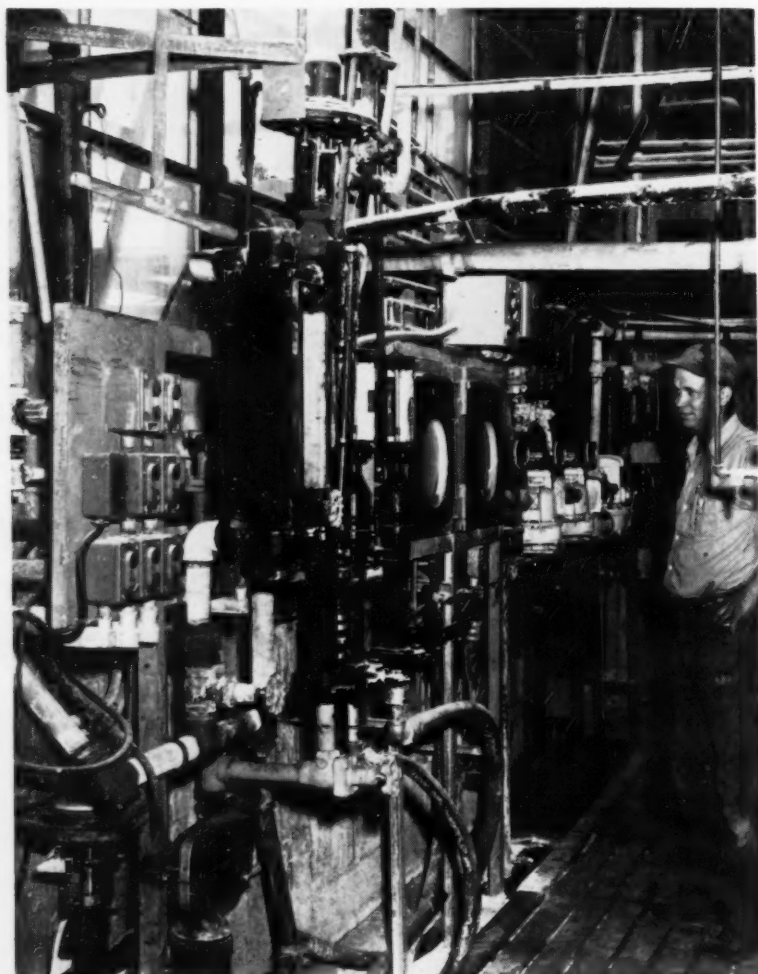
Features Suspension Fertilizers

A couple of years ago—when manufacturers of complete liquid fertilizers began to push toward higher

analysis, and to cope with the problems of using wet-process phosphoric acid, and to struggle against

salt-out problems in the chilly spring mornings—experimentation with suspension-type fertilizers, spearheaded by Tennessee Valley Authority's chemical engineering division and pursued by a number of commercial organizations, stirred an unusual amount of interest.

CONTROL PANEL—Edw. J. Funk & Sons' modern liquid fertilizer manufacturing plant located at Kentland, Indiana, incorporates latest methods of manufacturing high analysis fertilizers. Shown here is the electronic control board which governs pH and specific gravity. Meters are pre-set for calibrated amounts of ingredients.



A number of liquid fertilizer producers initiated production-scale experiments of their own, using sequesterants and suspending agents, and many have continued to use these methods on 'difficult' grades or where unusual weather conditions required some out-of-the-ordinary measures.

At least one liquid fertilizer mixer has adopted these methods as standard practice. Edward J. Funk & Sons at Kentland, in northwestern Indiana near the Illinois line, developed a 'slinger' to ease the application problems of slurry-type liquids, and spread more than 10,000 acres with suspension fertilizers in the past season. The unusual applicator actually slings, rather than sprays, the material on the soil. Funk claims an exceptionally even distribution pattern for the material, and finds an advantage in the fact that the farmer can see the fertilizer on his soil and assure himself that a thorough, even application was made.

Funk's suspensions are generally heavy slurries, which they find will pump easily during in-plant handling and load-out. Loaded into tank trucks immediately after manufacture, the material is taken directly to the farm for spreading. The trucks are equipped with mechanical mixers to keep the suspen-

sion agitated in the event there is any delay in application.

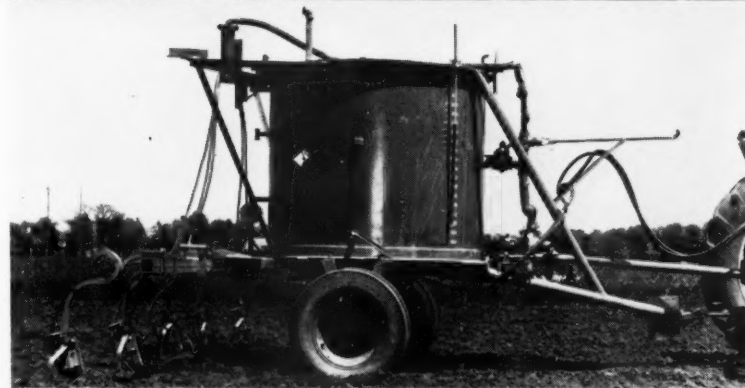
For application, the slurry is fed by centrifugal pumps through the 'slingers' which are actually rotating spinners similar to certain types of lawn sprinklers.

The Funk organization has erected a modern plant for manufacturing their liquid fertilizers in a wide range of analyses and grades up to 40 units of plant nutrients. Insecticides such as Heptachlor and Aldrin are easily incorporated into the suspensions for fall and winter application. The standard 'slinger' is used to distribute the fertilizer suspensions on the surface in fall, winter and spring application work. It covers a swath of 40 feet, or about ten corn rows width. Summer applications are knifed into the soil for accurate placement of the plant food alongside the planted row. The Funk firm states that the suspensions "have a tremendous holding power to the surface of the soil particle—like ink to a blotter."

Their manufacturing process is conventional, with modifications as necessary to best fit the requirements of the product they are making. Wet process 'black' phosphoric acid is sequestered with 'superphosphoric' acid and neutralized with anhydrous ammonia, water being added to maintain a controlled density.

A continuous process is used in the acid sequestration. Manual controls permit adjustment for proper ratio between the wet process phosphoric acid and superphosphoric acid. Visual inspection of the product is the check used, and the operator can readily determine whether the ratio is proper by the color and appearance of the material.

A double batch process is used for production of complete fertilizer solutions and suspensions; while one 6½-ton reactor vessel is being emp-



Key to pictures→

Top: Tractor Pull-Type Slinger—This easy to handle unit features dual tires for less soil compaction. The tank capacity is 500 gallons. A centrifugal pump forces the slurry to the spinners for even distribution.

Upper Center: Truck-Type Slinger—Suspension fertilizers can be applied in the comfort of a heated truck cab over frozen ground with convenient finger-tip controls. This unit carries a 1000-gallon tank. Suspension fertilizers do not freeze or salt-out in sub-zero temperatures.

Lower center: Knifing-In Suspensions — The same pull-type slinger is used to 'knife-in' suspension fertilizers, except the spinners are removed and a tool bar employing knives is attached. Plastic hoses feed down behind the knives to inject the slurry beneath the soil.

Bottom: Pattern from the Slinger—This picture shows the accurate, uniform pattern left by the slinger. This application was a formula of 19-9-12. The customer can actually see where his suspension fertilizer was distributed on his field.

tied, the other is being charged . . . with a single operator handling both operations. Production runs 30 to 40 tons an hour through this system.

Complete instrumentation has been installed in the Funk plant. A regulating pH meter controls the flow of ammonia in the neutralization process while sequestered acid is being fed into the reactor by conventional rotameters. Water-cooled coils are employed to dissipate the heat of reaction, with a constant recirculation of the mixture through the cooling coils and back into mixing tank. An automatic hydrometer recording regulator governs the flow of solution water into the reaction vessel to maintain proper density of the base solution at all times. Impulses from the anhydrous ammonia input meter are collected with a microflex accumulator which controls automatic scales that add

potash to the mixture in the reactor. Thus a solution fertilizer such as 6-18-6 can be produced a 40 tons an hour with absolute control.

In producing suspensions, which account for about 25% of the plant's output, attapulgitic clay is first dispersed with a shear pump into a pre-jel, to which the other ingredients are added. A precise 3:1 nitrogen-phosphoric acid ratio is used, with the remainder of the nitrogen added as an ammonium nitrate-urea solution. A fine grade of white soluble or red potassium chloride is the potash source.

So precise is the control in the Funk process that samples collected by the state fertilizer control office almost invariably tally out exactly with the guarantee, according to William E. Funk, who heads up production for the organization. During the past season, Funk's fourth and biggest season of liquid fertilizer

with an output of 10,000 tons, Mr. Funk reports that only one sample was found deficient in any plant food element guarantee, and—on the other side of the fence—the lab analyses showed the highest overformulation to contain less than one half a unit too much of a single plant nutrient.

Mr. Funk feels that the extra investment in instrumentation at the plant has more than paid for itself in reduction of overformulation to meet guarantees and in a avoidance of penalties for nutrient shortages.

The Funks are staunch supporters of suspension fertilizers, and feel this is where their major increase lies for future seasons. They are currently adding a second double-batching production unit to the plant facilities, so that complete fertilizer solutions and suspensions can be produced simultaneously by two operators at a rate of 60 to 80 tons hourly.

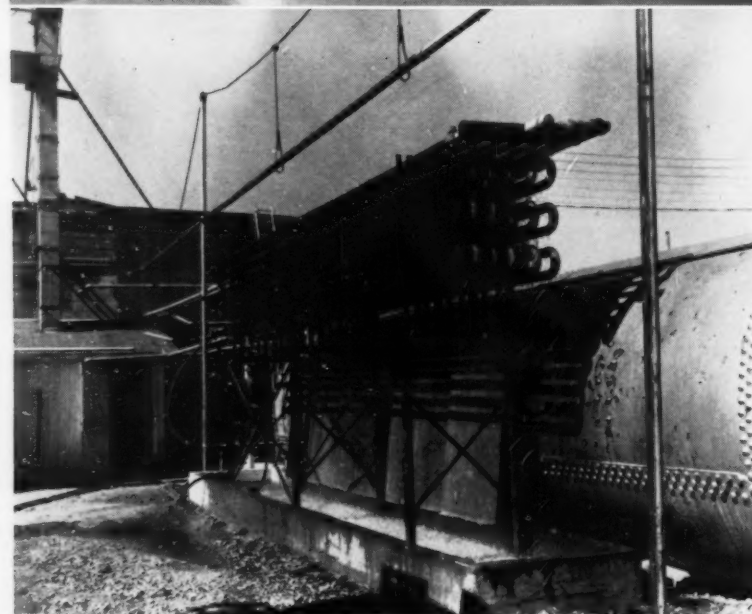
Among the advantages for suspension fertilizers they cite the higher analyses possible, plus the fact that an exact grade can be tailored to soil test and crop requirements. Suspensions can be applied during most of the year, they state, while the higher analyses and tailored grades permit putting down the complete fertilizer requirements in liquid form in a single application, saving labor and avoiding soil compaction.

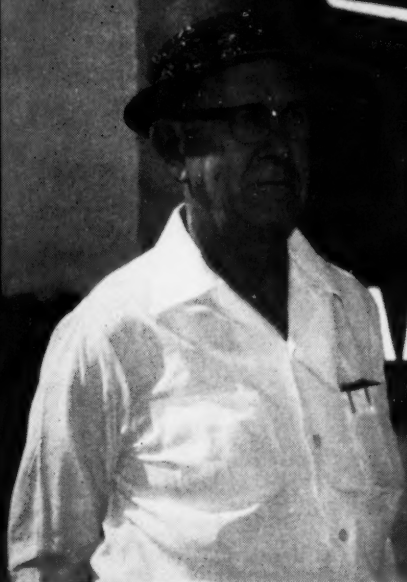
Also, they claim that low-cost plant food combinations along with low-cost manufacturing and spreading equipment such as they are able to use will result in lower plant-nutrients-applied costs for their customers.

Typical of the 'practical applications' recommended by Funk are the following: (1) Plow down 250 lbs./acre of 4-12-24; for starter, use 100 lbs./acre of 5-15-5; and apply 100 lbs. of anhydrous ammonia. This will give an application of 97-45-65 to match what 100 bushels of corn will remove from the soil. Or (2) Plow down 300 lbs./acre of 5-15-20; use 100 lbs. anhydrous ammonia, giving an application of 97-45-60. Or (3) Plow down 500 lbs./acre of the most popular package, containing 19-9-12, to give an application of 95-45-60. This can be applied at the farmer's convenience—in the fall, winter (except sandy soils), or spring. Both the manufacturing and application seasons are almost continuous. The constant flow of all basic plant food materials, from manufacturer to the farmer, is applied and stored directly in the soil in the proper ratios to feed the crop.

Top: Soil Testing Lab—The soil testing laboratory of Edw. J. Funk & Sons provides a special service to farmers to determine the plant food required by their crops for efficient production. With modern equipment, including the flame spectrophotometer, continuous checks are made on the manufacture of liquid fertilizers.

Bottom: Neutralization Process—Since a violent heat reaction is caused when the phosphoric acid and anhydrous ammonia are reacted together, a water-cooled system of coils is employed to cool the reaction, allowing for a continuous recirculation into the reactor vessel.





CYANAMID

BREWSTER

AMERICAN CYANAMID COMPANY

Arthur Crago, Manager of Phosphate Operations at Cyanamid's Brewster, Florida, Plant, draws on his more than 30 years of leadership in the phosphate industry to help meet your needs for this vital element. Among his many contributions, Mr. Crago developed the "Crago Process," the first phosphate flotation method to give you the high grade concentrates you need.

HIS BUSINESS IS MAKING YOUR BUSINESS BETTER

He's one of several hundred Cyanamid people who mine, process, research, deliver and service phosphatic materials for your acidulation and mixed fertilizer business. These people put Cyanamid's more than 40 years of phosphate experience into the kinds of products and services you can use.

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Traffic Service: Cyanamid traffic specialists are ready to route and ship your orders without delays. Their knowledge can save you money, and can make your operation run even more efficiently.

Technical Service: Cyanamid's staff of technical experts are constantly at your service. Make your formulation and production problems theirs. That's their job.

Sales Service: Cyanamid sales representatives are available to work with you and for you in expanding present markets or in establishing new markets.

Products you can use

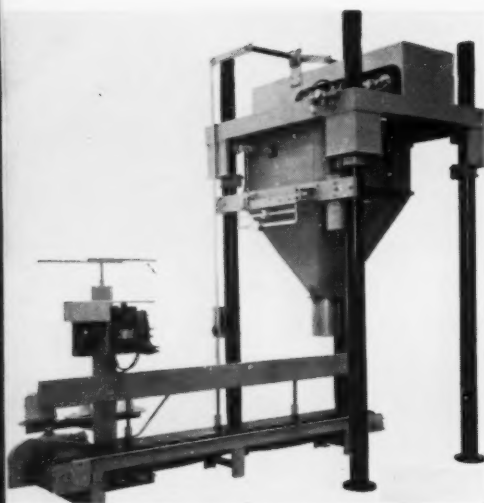
Cyanamid's phosphate business is the mining and manufacturing of the highest quality products for your mixed fertilizer requirements.

- Florida Natural Phosphate Rock
- TREBO-PHOS®—Triple Superphosphate
- Phosphoric acid — an economical source of P_2O_5 for high analysis fertilizers

American Cyanamid Company, Agricultural Division, New York 20, N. Y. *TREBO-PHOS is American Cyanamid Company's trademark for its triple superphosphate.



CYANAMID SERVES THE MAN WHO MAKES A BUSINESS OF AGRICULTURE



Open Mouth Packaging

An open mouth packaging system designed exclusively for fertilizer has been introduced by St. Regis Paper Company. It consists of a new STReamflow Scale and special open mouth closing equipment, and is designed to meet the fertilizer industry's need for higher production rates and lower packaging costs.

The STReamflow equipment will handle all grades of granular and pulverized fertilizer. It offers high productivity with excellent weight accuracy, dependability of operation through rugged construction and simplicity of design, and low purchase price.

Weight accuracy of plus-or-minus four ounces at average operating speeds results in less product giveaway.

The scale can handle up to 30 50-lb. charges per minute, up to 24 80- and 100-lb. charges per minute, and up to 14 167- and 200-lb. charges per minute. These rates provide ample reserve speed over and above average bagging rates to take care of peak seasonal rush periods.

These high production rates are made possible by four special features of the STReamflow scale: (1) A continuously operating belt feeder capable of delivering 84 tons of material per hour (14 200-lb. bags per minute). (2) A new scale design consisting of a double compartment bucket suspended from a single scale beam. While one compartment is dumping, the other is filling. The continuous stream from the belt feeder is merely diverted from one compartment to the other rather than being cut off as with conventional designs. This continuous flow results in maximum production. (3) Pneumatically operated air cylinders on the diverter and bucket grates insure fast, positive action. (4) Fast changeover from one weight or grade to another.

Rugged construction, combined with simplified controls and design, means that less skill is required to operate and maintain the STReamflow. Low maintenance time and costs are insured by a ball bearing scale bucket suspension system, provisions for easy lubrication of

new literature about equipment, materials and supplies

moving parts and extensive use of non-corrosive materials. All parts of the scale that come in contact with the product are constructed of stainless steel or fiberglass.

Since the legs that hold the STReamflow scale under the supply bin are adjustable (in that they can be clamped on the supporting frame at any position), unevenness in the floor or foundation presents no problems. Installation can also be made with a minimum of advance preparation.

The open mouth closing equipment designed as part of the STReamflow system consists of a 10' 8" sewing conveyor; a sewing machine pedestal of fabricated construction with a column of 6" x 6" square tubing; and a newly perfected thread cutter with automatic start and stop controls.

In a typical installation, headroom requirements for the STReamflow scale are 9' 11½" measured from the top of the sewing conveyor to the belt feeder inlet (assuming 28" clearance between bag spout and top of the sewing conveyor).

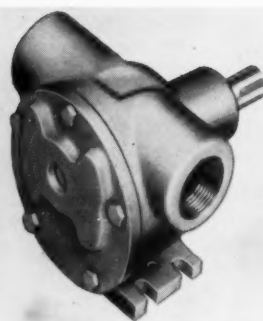
Air requirements for pneumatic operation of the scale are .2 cu. ft. free air per cycle at 80 PSIG. Electrical requirements for the feeder motor are ¾ HP, 220/440 volt, 3-phase, 60-cycle. Control circuit electrical requirements are 110 volt, single phase, 60 cycle.

For additional information, circle number 1 on CF's Information Service card, page 47.

Gyro-Cooler Data Sheet

The availability of a technical data sheet describing the recently developed Gyro-Cooler has been announced by Young Machinery Co., Inc. The single page illustrated data sheet gives design information concerning the new unit which cools and sifts granular products simultaneously. Complete specifications and dimensions are also included.

Copies of data sheet #601 are available by circling number 2 on CF's Information Service card, page 47.



Internal Gear Pumps

The Deming Company has announced a new line of internal gear agricultural service pumps. Designed for metering service (liquid fertilizer, insecticides, herbicides, etc.) and general service (filling water tanks, liquid manure transfer, etc.), these pumps contain many new features claimed to be of great aid to users.

A ¾" shaft on each of the models (I, II and III) of Fig. 1538 pumps can be driven from tractor PTO shaft, engine or chain-driven from towed vehicle.

Designed with internal gear for metering service, each model operates equally well in either direction, and can operate dry for a limited time without damage. The self-priming feature results in good suction lift. Equipped with Deming's 'Fianite' rotor, the user is assured of longer pump life.

For Bulletin 1538, containing complete information about agricultural service pumps, circle number 3 on CF's Information Service card, page 47.

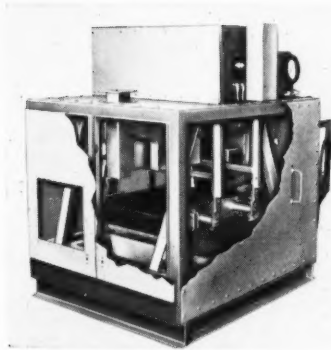
Bag-Type Dust Arresters

Northern Blower Division, Buell Engineering Co., Inc. offers a new eight-page brochure covering automatic bag type dust arresters that collect dust without interruption during bag cleaning. The booklet gives design and assembly information; tells how the dust collector operates; diagrams construction details; and tabularizes dimensions and capacities.

Text explains how air passes through the cloth filter bags and deposits dust on the inside surfaces, and how a variable speed electric timer controls the cyclic shaking and cleaning of bags. Construction details are given in such items as housing, bottom plates, bag-holder frames, and bags. Specification tables itemize engineering data for arresters in 25 capacity ranges, and include number and size of bag compartments, number of bags, cfm ratios, and approximate weight of arresters and supporting steelwork.

Also included are information and photographs regarding pneumatic and electric operation, rotary discharge valves, continuous screw conveyors, bag bands, and exhaust fans.

Copies of the new brochure can be obtained by circling number 4 on CF's Information Service card, page 47.



Continuous Weigh-Feeder

A new continuous weigh feeder which automatically maintains a preset feed rate of $\frac{1}{2}$ ton to 50 tons per hour has been announced by Thayer Scale Corporation.

Designated the CM12 system, it consists of a feeder, conveyor belt, and a Thayer flexure plate scale. The belt and its structural components, specially designed to prevent dust and material accumulation, are completely suspended from the scale. Several feeder types are available, depending upon the material to be handled by the system. The rotary feeder illustrated is for powdered materials that tend to aerate and flood. Coarse and grainy materials are usually best fed by means of vibrating types.

The entire system is enclosed in a dust tight housing, with dust collection vent, but the scale mechanism is impervious to dust, dirt, shock and vibration, since it employs the unique Thayer flexure plates in place of conventional knife-edge pivots. As a result, the weighing mechanism has no wearing parts, and maintains its precise accuracy indefinitely.

A separate control box contains all necessary instrumentation for completely automatic operation. The system is capable of regulating ratio type controllers and of yielding accurate and automatic proportioning of several ingredients to a process flow. Weight setting controls at the scale housing permit instant selection of a wide range of flow rates, while a totalizer indi-

cates pounds or tons per hour and the summation of a day's run.

Additional information may be obtained by circling number 5 on CF's Information Service card, page 47.

Fiberglass Fume Hood

Laboratory Construction Company announces a new product in its line—a fiberglass fume hood. Called the Fiberglass '47' Fume Hood, this new laboratory product is molded of resistant polyesters over fiberglass, making possible a fume hood that is light, chemically resistant and attractive, yet comparatively low in price.

Labconco's Fiberglass '47' Fume Hood is available in white, green or gray. It comes complete with blower, sash and interior light. It can be mounted on any cabinet or table with a smooth, flat surface measuring 47" by 30". Actual dimensions of the hood are 47" wide, 29" deep and 60" high.

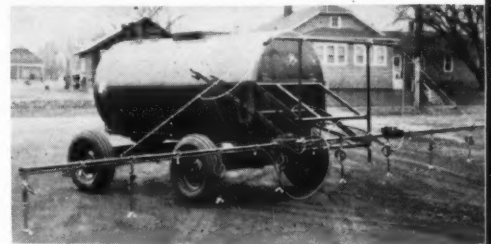
The blower is mounted in a box-like recess in the rear wall of the hood. It is powered by a $\frac{1}{4}$ h.p., 115-volt motor. Total weight of the hood is only 175 pounds. A con-



ventional baffle controls air flow over working surface and in upper hood.

The hood sash is $\frac{1}{4}$ " Plexiglass with a coating of clear polyurethane which prevents clouding and adds to the resistance of the material itself.

The new Fiberglass '47' Fume Hood also is available with matching base cabinet. For further information, circle number 6 on CF's Information Service card, page 47.



Pull-type Liquid Sprayer

A new 8-row pull-type sprayer—with a specially-engineered 1000-gallon tank—for use primarily in the liquid fertilizer field has been marketed by Finco, Inc., manufacturers of specialized farming equipment. This unit is easily adaptable to small row crops as well.

The heavy-gauge steel tank, inside-coated with a DuPont protective material that doubles tank life, is equipped with a mechanical agitator to keep spray chemicals in suspension at all times. The tank is fitted with a reservoir filling cap for easy addition of desired spray load. Also at the top of the tank is a special access door to permit a man to climb inside for a thorough cleaning.

The Finco spray unit is complete with high-pressure hoses, pancake-type filter and a high-capacity pump, powered by a 6.3 horsepower gasoline engine.

This new sprayer rides on over-size 900 x 16, 10-ply implement tires to give maximum flotation in plowed fields, especially where considerable wet conditions are prevalent.

For additional information, specifications and prices, circle number 7 on CF's Information Service card, page 47.

Ribbon Blender Brochure

A new four-page descriptive brochure covering its line of Ribbon Blenders is offered by Munson Mill Machinery Co.

The bulletin describes blenders designed for use in a variety of applications. Application data and engineering specifications are included.

Copies may be obtained by circling number 8 on CF's Information Service card, page 47.

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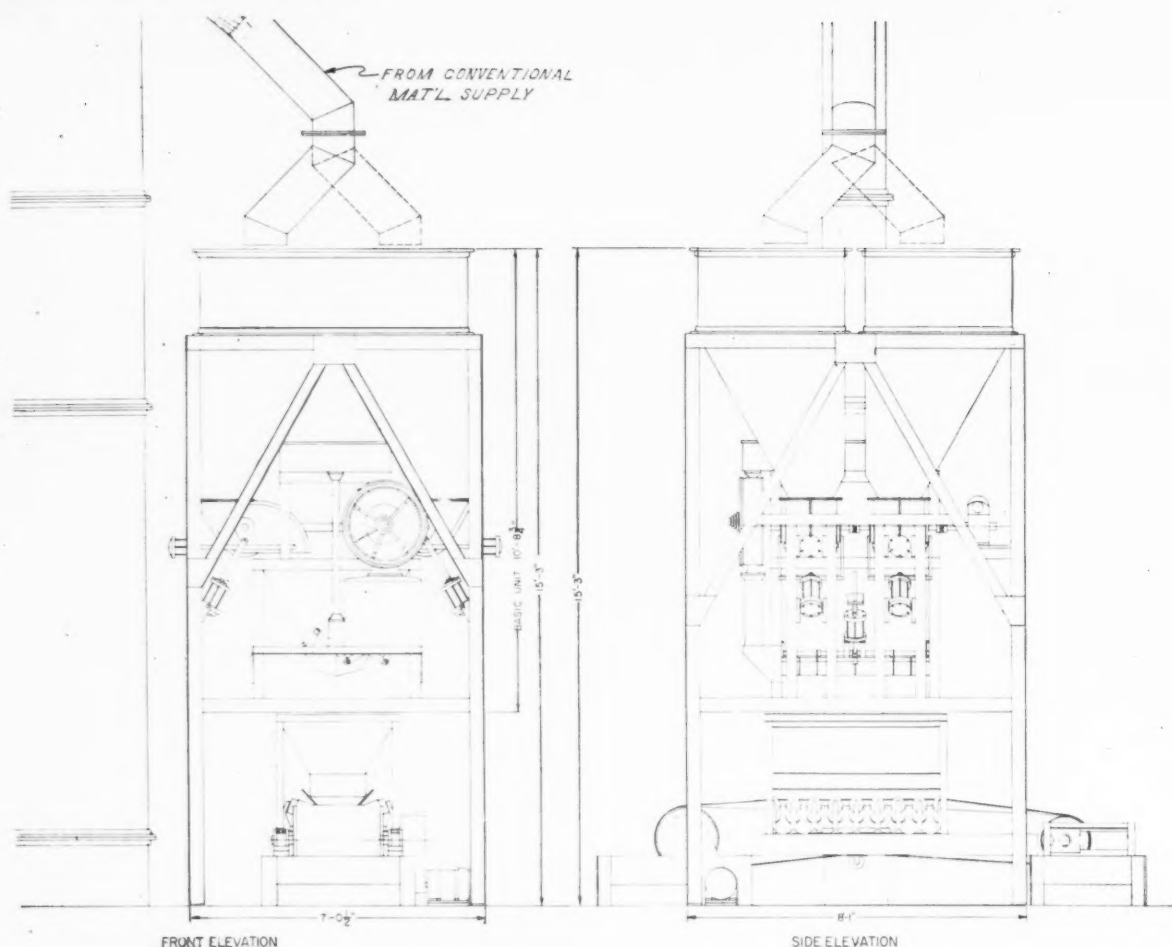
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New Batching Unit

Inglett Development & Engineering Associates, Inc., has developed a new approach to batch-weighing of fertilizer materials for dry mixing. In their new batching unit, IDEA Model 614, they have combined the advantages of weighing each material separately with the conveniences of controlled, continuous flow batching.

These units will handle several separate ingredients together, blending them by weight, using only slightly more space than an ordi-

nary bagging machine. They can discharge into a take-away unit for continuous mixing, or directly into a conventional batch mixer. The units are completely automatic. The supply spout automatically revolves to the supply hopper next to receive material and a panel indicates to the payloader operator the name of the material next to be brought. No labor whatsoever is required to operate this unit and output ton-nages ranging from the minimum desired up to 60-tons per hour can be acquired with weight accuracies to within plus or minus $\frac{1}{2}$ of 1%.

Original investment and mainte-

nance is only a fraction of that ordinarily required for the conventional type batch-weighing system capable of the production of this one unit.

For additional information, circle number 9 on CF's Information Service card, page 47.

New Air Classifier

Buell Engineering offers reprints of an article which describes the first U.S. application of their new high-efficiency classifier. The article tells how engineers use their classifier to separate fine dust particles from crushed material. It explains how they take out fines to produce a premium coarse product, and at the same time collect the fines for another use.

The article includes a photograph of the installation, a line drawing illustrating how the classifier works, and a graph showing the particle size distribution of: (1) the original material, (2) the fines, and (3) the coarse aggregate.

Text explains how the Buell classifier uses air flow only to separate fines from coarse material. The classifier has no moving parts and needs no attention once the separation point has been set.

You can obtain copies of this reprint by circling number 10 on CF's Information Service card, page 47.



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Information Service Bureau

Commercial Fertilizer and Plant Food Industry

75 Third Street, N. W.

Atlanta 8, Georgia

Specialty Fertilizer Packaging

Alton Box Board Company has introduced a new type of packaging for fertilizer products requiring both multi-color halftone printing for sharp merchandising appeal and also protective strength for longer shelf life.

The company says its development of new Elite Flute—a slimmer, more versatile corrugated material—gives corrugated the same top quality, fine-screen printability of light weight folding cartons. Alton carton and container plants print Elite Flute packaging on letterpress and rotogravure equipment.

The new material is actually a folding-corrugated, the manufacturer states, which has proven in extensive test marketing that it can handle effortlessly products which make cartons of regular box board sag, bulge or break down. They claim that Elite Flute has unique advantages for many products, including fertilizer products were standard folding cartons provide only marginal strength and the best of corrugated lacks eye-catching appeal to the impulse buyer.

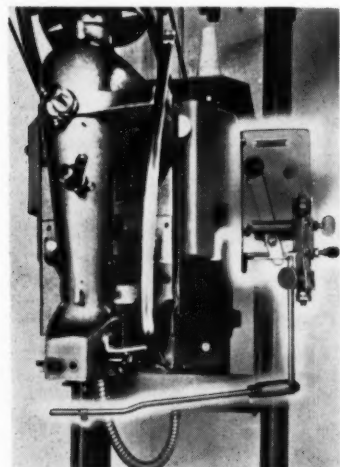
Elite Flute is a mere one-sixteenth of an inch thick, and virtually eliminates the old 'washboard' effect of standard corrugated, which is twice as thick as Elite Flute.

Full particulars on Elite Flute cartons may be obtained by circling number 11 on CF's Information Service card, page 47.

Automatic Sewing Initiator

The automatic initiator for the new Richardson sewing pedestal never needs changing or transferring when sewing heads are changed, because it is mounted on the horizontal slide of the pedestal, not on the sewing head.

This exclusive feature minimizes downtime when a thread breaks, or when a different head is required, and also saves thread and



tape. Even though a user has two, three or more sewing heads, only one initiator is necessary with the Richardson designed pedestal, as initiator is not integral with head, but remains attached to pedestal frame.

For full information, circle number 12 on CF's Information Service card, page 47.

'Sulphur in Plants and Soils'

Texas Gulf Sulphur Company has released Section V of its Sulphur Manual which was issued with four sections and an addendum a little over a year ago. Section V, entitled 'Sulphur in Plants and Soils,' is another in the series and discusses uses of Sulphur and its derivatives in soils as plant nutrients and soil conditioners. This up-to-date material in the 24 page section was prepared and edited by Dr. Firman E. Bear, editor of *Soil Science* and a well-known authority on soils and plants. Other sections will follow discussing the importance of sulphur to the world's economy.

Individually bound copies of 'Sulphur in Plants and Soils' can be obtained by circling number 13 on CF's Information Service card, page 47.

Air Pollution Analyzer

A new bulletin describing Beckman Air Pollution Acralyzers has been published by the Scientific and Process Instruments Division of Beckman Instruments, Inc.

The Acralyzers (Automatic Chemical Reagent Addition Analyzers) are designed specifically to monitor and record low concentrations of oxidants, oxides of nitrogen, or sulfur dioxide in the atmosphere.

Extremely simple to operate, the instruments automatically make precision measurements over a full-scale range as narrow as 0 to 2 ppm for NO₂, NO + NO₂, SO₂, or oxidants.

The Acralyzers, available in any of several models to fit the requirements of particular operations, are especially useful for monitoring emissions and insuring compliance with control regulations.

For further information on the Beckman Air Pollution Acralyzers, contained in Bulletin K-4023, circle number 14 on CF's Information Service card, page 47.

Liquid Fertilizer Engine

Clinton Engines Corporation is introducing to the fast-growing liquid fertilizer industry this spring a 3.25 horsepower, 4-cycle gasoline engine with two years of proven field use behind it. Known as the H-3190, it is the only cast iron engine of its size on the market.

Its shell-molded construction not only assures its long-wearing qualities at a minimum weight but makes it uniquely useful for the liquid fertilizer industry, especially for the pumping of complete-mix and aqua ammonia solutions. The iron engine is resistant to chemical attack and, because it is iron, more nearly matches the life of the pump.

The H-3190 is equipped with a horizontal crankshaft with power take-off extensions available to match any well-known pump. It is also provided with accessories designed to assure the most trouble-free performance possible.

Th engine's market is a wide one. It includes use on bulk tanks, transport tanks and nurse tanks as well as in field applications.

For detailed information, circle number 15 on CF's Information Service card, page 47.



Precision Distributors

Lely Ltd. is offering descriptive literature on their precision fertilizer distributor, which has found wide acceptance in U.S. agriculture since its recent introduction.

The distributor is offered in three different models. The model H is a three-point hitch type. Model HC is the Model H mounted on a special two-frame carrier, with 15-inch standard implement wheels. The Model W (pictured) is a tow type ground-driven unit.

All three styles feature a single quick release hatch which exposes all parts for quick, easy cleaning.

Hopper capacity is 800-1000 pounds. Spreading width is 15-50 feet, and either a rear delivery or side delivery spreading pattern can be achieved.

Forcefeeding system is equipped with a dynamic design ejector disc, and the manufacturer claims an accurate, wide range of feed rate control. A positive agitator assures smooth feed of wet or lumpy materials.

For detailed descriptive literature on the Lely precision distributor, circle number 16 on CF's Information Service card, page 47.

Centrifugal Dust Separator

The Day 'HV' Centrifugal Dust Separator is detailed in a new bulletin released by The Day Co. This 12-page illustrated brochure includes performance data, selection and dimension charts, and installation photos with descriptions for the 'HV' cyclonic separator and supports.

The 'HV' is a rugged high efficiency unit which comes in 20 standard sizes and can handle any volume of air from 150 CFM up efficiently and economically. Multiple groupings of the 'HV' can be furnished 'tailored' to meet any collection requirements. Because of rugged construction, smooth interior and high separating efficiency the 'HV' can be used for a wide range of applications. It successfully handles fibrous, granular, abrasive and fine or coarse dusts and can be used on pressure or vacuum.

For a free copy of this new bulletin, No. E-221, circle number 17 on CF's Information Service card, page 47.

Fluorescent Growth Lamp

Sylvania Electric Products Inc. has announced the development of a fluorescent lamp designed to improve certain growth aspects of plants through specific spectral energy distribution.

The lamp, called the Gro-Lux fluorescent, was designed by Sylvania's Lighting Products Division to meet specifications established by botanists, growers and plant physiologists. The lamp makes it possible to obtain in one tube a balance of radiation which previously was obtainable only by combining several light sources. It provides peaks of energy in the blue and red regions of the spectrum which independent researchers consider the most desirable for improved vegetative growth.

It is expected that the Sylvania lamp will result in more efficient conversion of radiant energy into chemical energy through the process of photosynthesis.

The Gro-Lux lamp is being used by researchers engaged in various growth studies. It will be made available to other qualified researchers after August 1 and will be available commercially in the fall.

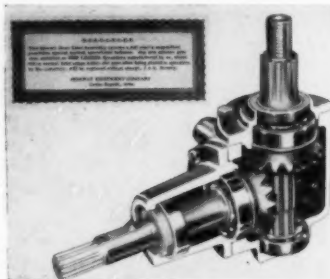
For further details, circle number 20 on CF's Information Service card, page 47.

Factory-Sealed Spinner Gear

New factory-lubricated, factory-sealed spinner gear cases on all New Leader lime and fertilizer spreaders are guaranteed unconditionally for one full year against normal operational failures.

With the sealed gear case, a spreader operator no longer is faced with the problem of determining when the case should be lubricated and how much grease of a particular type should be used. The unit requires absolutely no attention, summer or winter.

The new design incorporates a hardened shaft and tapered spine for positive pulling, and eliminates



slippage from worn shafts. According to the manufacturer, this means less down time and a more profitable spreading operation.

The top of the shaft is protected from corrosion by an acorn nut, which is simply unscrewed when it is necessary to replace worn discs.

A separate sealed gear case is provided for each of the constant-speed twin spinners featured on New Leader spreaders.

The spinners are powered by either the PTO or air-cooled gasoline engine with gear reduction

clutch through a direct drive shaft and chain system.

For additional information on this new spinner gear case assembly, circle number 21 on CF's Information Service card, page 47.

New Multiple Riffle

One of the big problems in making an accurate laboratory analysis has always been the difficulty of securing a small sample that accurately reflects the true composition of the lot from which it was drawn.

Recent studies at Purdue University have now resulted in the development of a simple multiple riffle which not only reduces variations between samples to half the level of samples prepared by hand but also cuts sample preparation time to one-fourth that formerly required.

Material to be reduced is simply placed in the hopper at the top of the riffle and released by means of an adjustable gate. As the material slides down the inclined riffle it drops through openings which accurately divide the total sample into portions of one-half, one-fourth, one-eighth, and one-sixteenth. Four pans beneath the riffle collect each fractional portion.

Tests made of samples of widely differing particle size revealed a close correlation between the actual and theoretical percentage weight of each separated fraction. More important, careful sieve analysis of all fractions produced results considered to be identical within the normal accuracy limits of sieve analysis.

This new multiple riffle is being introduced to the commercial market by Seedburo Equipment Company. Additional information may be secured by circling number 22 on CF's Information Service card, page 47.

Trough Conveyors Catalog

A newly published catalog features a complete line of portable Trough Conveyors for handling a wide variety of bulk materials. These gas and electric powered machines are manufactured by the A-B Farquhar Division of Conveyor Systems, Inc. Several new design improvements are featured as well as a range of optional equipment for handling specialized work.

Capacities are either 60 or 90 yards of material per hour and there are two basic styles, the Model 334-T with single trougher rollers, and Model 343 with three section trougher rollers. Either machine is available in lengths of 20', 25', 30', 35' and 40'. Standard belt widths are either 18" or 24". Gasoline engine power or electric motor power is available for either unit. Rubber tired or steel wheels are available as well as optional swivel chute, discharge hood, weighted belt scraper and feed and hopper plates.

These units are designed for handling fertilizers, limestone, and many other products.

A copy of the new, two-color catalog will be sent on request. Just circle number 23 on CF's Information Service card, page 47.

Rail Car Retaining Strips

Bemis Bro. Bag Company has developed an easy-to-install paper retaining strip that prevents slippage of rail-shipped products into storm doorways.

The new retaining strips have no steel bands and require no special tools or materials, which allow not only faster but also safer installation, the company said.

Constructed of heavy-duty extensible kraft paper reinforced with Fiberglas scrim and rovings, the new retaining strips are installed across the doorway by built-in nailing strips. The strips are randomly nailed to the car wall about six inches from each side of the doorway, allowing the cooper to bypass parts of the wall that have been splintered by previous nailings.

By barring slippage of the cargo into the storm doorways, the retaining strips not only prevent damage, but also facilitate inspection at any time during shipment. A secondary advantage of eliminating the steel straps normally used with retaining strips, it was pointed out, is that the car can be cleanly and safely stripped after unloading.

The new retaining strips are versatile, Bemis said, in that the retaining strips on the loading side of the car can be closed from the outside after the car has been completely loaded.

Trade-marked 'Ship-Safe,' the retaining strips are available for six-through ten-foot doorways in heights of two and three feet. They are packed in compact units of 25.

For further information, circle number 18 on CF's Information Service card, page 47.

Pneumatic Vibratory Feeders

Their new 4-page bulletin No. 308 on pneumatic vibratory feeders has just been released by National Air Vibrator Company.

According to the manufacturer, Navco pneumatic vibratory feeders feature a patented simple design... are lowest in original and operating costs. A 'one-piece' vibrator design eliminates body assembly bolts and cuts vibrator maintenance. A wide range of flow rates can be obtained on the feeders just by varying the air pressure range from 20 to 70 psi.

Copies of catalog No. 308, containing illustrations and specification drawings, may be obtained by circling number 19 on CF's Information Service card, page 47.

How Union-Camp's 5-Star Plan saved multiwall user up to \$450 per carload of bags

This is a new kind of "Big-Inch" story.

A major mid-west packer* wasn't convinced his multiwall bagging operation was all it might be. Could Union-Camp's 5-Star Multiwall Plan help?

To get the answer, Union-Camp multiwall specialists visited the plant. They found that the automatically filled bags occasionally stuck in the sewing head. Also, that the sewing line tended to "belly" and form an arc pattern. The result was considerable loss in production and frequent breakage. Another problem—the bags didn't warehouse well.

"Sew-Straight" Solution

After completing their analysis, the Union-Camp men suggested installing a "Sew-Straight" attachment right onto the sewing head. The bags could now be closed with an "E" head in a perfectly straight line. And only 1 inch from the top of the bag. That single inch made all the difference.

Less paper—less breakage

To begin with, shorter bags could be used. The savings in paper alone cut

the firm's multiwall costs from between \$350 to \$450 a carload. Imagine the savings based on several dozen carloads a year!



Before and After. Old, semi-circular closure pattern (left) and the new closure (arrow). Note the straight sewing line, and how close it is to the top of the bag.

The new attachment also speeded production by eliminating sewing head jam-ups. Moreover, since the top closure is now identical to the factory-sewn bottom closure, the bags form a perfect pillow shape—no awkward ears. This makes them easier to handle . . . easier to stack. And there's less breakage and fewer rejects.

How much could you save?

Perhaps an idea unearthed through Union-Camp's 5-Star Plan could save you money. The chances are excellent. For every day, multiwall users, large and small, are reducing their multiwall costs by capitalizing on this comprehensive packaging service. Their savings run from a few thousand dollars to over \$100,000 a year.

Apart from bag construction, this economy program covers bag design, specifications control, packaging machinery, and a survey of your materials handling operation. And it costs you nothing—regardless of the brand of bags you now use.

FREE 16-PAGE BOOKLET

Write Dept. M-3 today for a free copy of Union-Camp's new 5-Star Plan booklet. It describes many case histories showing how packers like yourself have achieved greater efficiency and economy in their multiwall operation.



UNION-CAMP

MULTI WALL BAGS

Union Bag-Camp Paper Corporation 233 Broadway N.Y. 7, N.Y.

* NAME ON REQUEST

Davison Chemical

William M. Rohrer has been appointed general sales manager, agricultural chemicals, by W. R. Grace & Co., Davison Chemical division, it is announced by D. N. Hausman, vice-president of the division.



Rohrer

In his new position, Mr. Rohrer will be responsible for the sales of, triple superphosphate, Florida phosphate rock, diammonium phosphate, normal superphosphate, phosphoric acid and sulphuric acid.

Mr. Rohrer has had wide experience during his 14 years with the organization. His first assignments were in corporate research and the Peruvian desk of the parent company. He then went in turn with Nacq Fertilizer Co. and Thurston Chemical Co., Grace subsidiaries, as purchasing director. He came to the Davison division in 1954, first in purchasing, later in domestic sales of triple superphosphate and export sales of agricultural chemicals. In 1960 he was named assistant general sales manager, agricultural chemicals.

In his new post he succeeds William Caspari, Jr., retired from active duty but continuing in a consulting capacity.

Acme Fertilizer

Acme Fertilizer Company, Acme, North Carolina, announces the election of Newton J. Kelly and W. Clark Bellamy to vice presidents of the company. Both will devote more time in sales promotion of the company's products.

In addition to mixed fertilizers, Acme produces insecticides and superphosphate. The latter is used in the company's own products, and is also sold to other fertilizer manufacturers.

The promotions were announced by Thomas H. Wright, Jr., president. Acme Fertilizer Company was founded in 1883 and operation has continued at the same location for 78 years.

Rutgers

Dr. Leland G. Merrill, Jr., Rutgers research specialist in entomology, has taken office as dean of the College of Agriculture and director of the Experiment Station and Co-operative Extension Service of the New Jersey State University. He succeeds Dr. William H. Martin, dean emeritus, who retired in June last year.

PEOPLE in the

IMC

Two districts sales managers have been promoted to regional sales managers by the materials department of International Minerals & Chemical Corporation.

Thomas A. Bruns was named regional sales manager at New York. He will be responsible for the sale of agricultural chemicals in Maine, Vermont, New Hampshire, Massachusetts, Connecticut, New York, New Jersey, Maryland, Pennsylvania, Delaware, Rhode Island, Virginia, West Virginia and Canada. He joined IMC as a sales clerk in 1946 and was subsequently promoted to



Bruns



Drewry

assistant export sales manager. He was later named sales manager for the Far East and then area sales manager for the phosphate rock division. He has been located at Columbus, Ohio.

Judson H. Drewry, Jr. has been promoted to regional sales manager at Atlanta. He will be responsible for the sale of agricultural chemicals in Florida, Georgia, North and South Carolina, Alabama and the eastern two-thirds of Tennessee. He was regional sales representative for the potash division from 1949 to 1957, when he was named southern area sales manager for the phosphate minerals division. In 1959 he became a district manager for the materials department, and has been located at Maitland, Fla.

American Potash

Paul E. McCoy has been named assistant manager of boron products and glass and ceramic industry sales for American Potash & Chemical Corporation, it was announced by Dr. A. J. Dirksen, general sales manager, eastern. He will continue as manager of Lindsay rare earth chemical sales where there are allied interests. Mr. McCoy has been a member of American Potash's eastern sales staff in New York since 1955.

Dorr-Oliver

Glenn O. Wilson has been named to the newly created post of manager of the sales technical divisions of the international division of Dorr-Oliver Incorporated, Stamford, Connecticut, as part of a program aimed at further improving D-O service to customers in South America, Africa, and Asia.



Wilson

Mr. Wilson has been with the organization since 1928, when he joined the Dorr Company Engineers, predecessor company to Dorr-Oliver Incorporated, in their Denver, Colo., engineering department. He has most recently been director of technical coordination.

U.S.I.

Dr. Aimison Jonnard has been named manager of market research and development for U. S. Industrial Chemicals Co., division of National Distillers and Chemical Corporation. Announcement of Dr. Jonnard's new post was made by Dr. R. E. Hulse, U.S.I. general manager.



Jonnard

In his new post, Dr. Jonnard will be concerned with markets for U.S.I.'s current product mix as well as being responsible for all development projects involving new products and new markets that fit into U.S.I.'s long range planning and development program.

Dr. Jonnard joined U.S.I. in 1959 as assistant manager, Polymer Planning and Applications, a post he held until his recent promotion. Prior to joining U.S.I., Dr. Jonnard was manager of Shell Chemical Company's Market Analysis Department. He has also held research positions with the Melton Institute of Industrial Research and Kansas State University.

Mid-South

Leon M. Tucker has joined Mid-South Chemical, Memphis, as administrative assistant to Harry Gunther, manager of operations.

INDUSTRY

C&I

H. H. Hamilton, president of The Chemical and Industrial Corp. of Cincinnati, Ohio announced the appointment of Enrico Pelitti as manager of the new Phosphate division of C&I and its subsidiary, Girdler Corporation of Louisville, Ky.



Pelitti

Enrico Pelitti received his engineering doctorate from the University of Genoa, Italy in 1937; he did his undergraduate work at the Italian Naval Academy at Leghorn, Italy and received a B.S. degree in 1935. He came to the United States right after the war and became an American citizen in 1950. Mr. Pelitti is a registered professional engineer in Italy and in Connecticut and a member of A.S.M.E. and A.I.Ch.E.

He was associated with the Dorr Company and Dorr-Oliver Inc. for approximately 12 years, and during this time was responsible for the design of all fertilizer plants connected with Dorr's activities in this field, including plants in England, Switzerland, Japan, Venezuela, Scotland and Greece.

Immediately prior to coming with C&I, Mr. Pelitti was associated with Chemical Construction Corp. in New York and was in charge of the phosphate section, being responsible for the design and sale of plants of this type.

Lummus

The Lummus Company has appointed three sales engineers to expand its senior sales staff, Ralph E. Wise, vice president and director of sales, has announced.

Vice president Wise said the new appointees to the central sales department include Robert M. Cornforth, of Lafayette, Calif., formerly national sales manager for Information Systems, a subsidiary of Chance-Vought Aircraft; Marvin M. Ramer, of Pittsburgh, Pa., district manager of the Blaw-Knox Company; and John J. Schottinger, of La Mirada, Calif., a project manager for the Ralph M. Parsons Company. All will make their headquarters at Lummus' main office in New York City.

Cyanamid

Burton F. Bowman, assistant general manager of American Cyanamid Company's agricultural division, has been elected president of Cyanamid of Canada Limited, effective July 1, as we reported last month. Cyanamid of Canada is a wholly-owned subsidiary of Cyanamid with headquarters in Montreal, Quebec.



Bowman

Mr. Bowman joined Cyanamid as general sales manager of the fine chemicals division in 1954, was named marketing director of the agricultural division in 1958 and assistant general manager of that division in 1960.

Raymond S. Grupinski has been appointed administrative assistant to Harry H. Phillips, northeastern regional manager, announced E. H. Smythe, marketing director for Cyanamid's agricultural division. In his new position, Mr. Grupinski will be involved with the marketing of the division's agricultural products. During his seven years with Cyanamid, he has held several accounting positions.

Leonard Construction

Ralph E. Meints, a partner in the Chicago engineering firm of Vern E. Alden Co., has joined the engineering staff of Leonard Construction Company, Chicago, M. R. Paullus, Leonard president, has announced. He will work on special engineering and development assignments for Leonard.

Sinclair

Sinclair Petrochemicals, Inc. announced the appointment of Robert



Barr

M. Barr as district sales representative with headquarters in Atlanta, Georgia. Mr. Barr, a native of Chicago, Illinois attended Loyola University and served in the U.S. Air Force. Prior to joining Sinclair Petrochemicals, Inc. he was a sales representative with Continental Oil Company.

PCA

As of July 1, Dr. Edwin C. Kapusta joined Potash Company of



Kapusta

America as technical sales director. In this capacity he will be responsible for technical service to customers, sales to the chemical industry, liaison between production and sales, and market research and analysis.

Dr. Kapusta is well known in the industry, having previously served with National Fertilizer Association and U. S. Borax & Chemical Corporation.

Armour

Dr. Ernest Csendes, a research chemist in the pioneering research division of E. I. du Pont de Nemours and Company, has been appointed research director of Armour Agricultural Chemical Company, it was announced by W. E. Shelburne, president.

With DuPont since 1953, Dr. Csendes has had extensive experience in the chemistry of nitrogen, sulfur, phosphorus and organometallic compounds, as well as many others. He also has had considerable supervisory and administrative experience with DuPont.

Richmond Guano

At a meeting of the Richmond Guano Co. board of directors, W. E. Barret, expressed the desire to be relieved on June 30 of his responsibilities as president, a position he has held since 1927.

After acceptance of his resignation, he was elected to the position of consultant, effective July 1.

The Board then elected the following officers, effective July 1: L. Dudley George, president; James H. Pate, vice-president; George F. Helfert, secretary and treasurer; and Fred E. Goggin, assistant secretary and assistant treasurer.

Texas Gulf Sulphur

L. H. Gravier has retired from Texas Gulf Sulphur Company, and T. P. Townsend has been elected as controller and assistant treasurer, according to word from Claude O. Stephens, president.

Florida Fertilizer

Florida Fertilizer Co., Wauchula, has elected to the board Durward Smith, fertilizer dealer at Arcadia, and H. D. Ryals, Fort Ogden rancher.

Bemis

With the retirement of H. V. Howes, Bemis Bro. Bag Company has named Richard V. Scott, vice-president and former assistant sales director, to head sales for the company. Mr. Howes remains as a director of the company he joined in 1920. During this period he has played a big part in the development of the packaging industry.

Mr. Scott has been with Bemis since 1931, and followed much the same path as Mr. Howes, entering in the accounting department, and moving into sales.



Howes



Scott

To the company's newly created post of director of product development, R. P. Perry has been moved up from manager of the Minneapolis plant and sales division. He will be succeeded in Minneapolis by Dexter A. Clarke, who has been managing the Bemis plant and sales division



Perry



Clarke

in Indianapolis. Again both men have followed much the same path, both getting their original indoctrinations in the Visinet Mill—Mr. Perry in 1946 and Mr. Clarke in 1931.

Succeeding Mr. Clarke in Indianapolis will be K. W. Koechig, assistant to the manager since April, 1959.

Mr. Koechig joined Bemis in 1943 as a sales correspondent in St. Louis. He was transferred in 1951 to the general sales department as an assistant to the director of sales.



Koechig

US Borax

Appointment of Dr. Howard Steinberg as director of chemical research for United States Borax Research Corporation, Anaheim, Calif., has been announced by Dr. C. L. Randolph, vice president of the wholly owned subsidiary of United States Borax & Chemical Corporation.

Dr. Steinberg, who joined U. S. Borax Research in 1954 as a research chemist, served most recently as associate director of chemical research.

W. R. Grace

W. R. Grace & Co. has announced the appointment of Dr. Charles E. Waring as head of its new Paris office, for liaison with the European chemical industry. Dr. Waring has been in charge of the Grace chemical group business development function and a vice-president since 1956.

Grace has also announced the appointment of John F. Kelsey as assistant treasurer and director of investor relations. In his new position Mr. Kelsey will be responsible for liaison with the financial community and the stockholders of the company. Since 1948 Mr. Kelsey has been associated with a Grace subsidiary, Griswold and Company, Inc.

Stauffer

Stauffer Chemical has named Richard C. Erwin as director of agricultural development for their three western sales regions. He has been technical sales representative in the Los Angeles region.

Commonwealth Fertilizer

At a recent meeting of the board of directors, Nat H. Love relinquished his position as president of the Commonwealth Fertilizer Company, Russellville, Ky., and was granted an extended sick leave.

Joseph A. Hicks was elected president and general manager and Mrs. L. M. Hunter was elected to the office of assistant secretary.

Ortho

The appointment of Robert W. Garrett as assistant to the president of California Chemical Company, Ortho division, was announced by Howard J. Grady, president of the company. He has been with Standard Oil Company of California for 24 years and for the last six has been chief analyst with the Ortho Division of Calchemical, responsible for economic analysis of projects proposed in the agricultural and garden chemical field.

New appointments to executive positions in California Chemical

Company's giant plant food operation now under construction at Ft. Madison have also been announced by Mr. Grady.

William McKinlay Miller has been appointed plant manager with supervision of the operation of the four major units — anhydrous ammonia plant, ammonium nitrate plant, nitric acid, and complex pelleted fertilizer plant. He has been with the Standard Oil of California Company for sixteen years.

James E. Spaulding has been appointed chief plant engineer. The Spaulding has held various engineering posts in the Standard Oil of California Company refineries during the past thirteen years.

Gayle H. Nichols, Jr., with Standard Oil of California for eight years, has been appointed operating foreman at the Fort Madison plant.

William R. La Haye, formerly with California Exploration Company in San Francisco as personnel representative, has been appointed supervisor of employee relations and organization. He has been with Standard Oil Company of California for 14 years in personnel work.

James L. Welty, with them for 13 years, has been appointed plant buyer for the Fort Madison operation.

Joseph L. Royce, presently traffic representative at Ortho division's Richmond plant, has been appointed to the same job at Fort Madison.

The appointment of James E. Merz as branch manager for Ortho products with headquarters in Salinas has been announced by M. W. Choate, district manager. He has been with Ortho for fifteen years.

The appointment of Francis W. Sullivan as sales representative for Ortho Garden and Home products in the Dayton area has been announced by Wallace J. Majure, district manager.

The appointment of Anthony 'Pete' Nicas as agricultural product salesman, has been announced by R. T. Wallace, district manager. He headquarters at Inwood, W. Va.

The appointment of George R. Hawkes to the post of Western regional agronomist and Robert E. Warnock to northern regional agronomist was announced recently by Dr. Malcolm H. McVickar, chief agronomist.

Mr. Hawkes, who has held the position of district agronomist with Ortho in the San Joaquin Valley, California, will now have supervision of agronomic research field work in the eleven western states served by the Ortho plant food manufacturing plants in Richmond, California, and Kennewick, Washington.

His headquarters will be at the Ortho Division plant in Richmond.

Mr. Warnock will direct agronomic field research activities in the 23 northern states to be served by the Ortho plant food plant now under construction in Fort Madison, Iowa. Prior to this appointment, he held the post of district agronomist in the mid-California area with headquarters in Sacramento and later, as district agronomist in the Intermountain area with headquarters at Salt Lake City.

The appointment of William W. Wagner as district agronomist, with headquarters in San Jose, has been announced jointly by M. W. Choate, district manager, and Dr. McVickar, chief agronomist, Calchemical.

Mr. Wagner will be in charge of plant food research and field testing programs for Ortho in the coastal area between San Francisco and Los Angeles.

The appointment of Carl O. Hansen as a research specialist in the Florida area, has been announced by Leo Gardner, manager of research and development. He will headquarter at Orlando.

Olin Mathieson

Derek Richardson has been appointed to the newly created post of vice president for marketing of the Chemicals division of Olin Mathieson Chemical, effective July 1, it was announced by John O. Logan, vice president and general manager, Chemicals division. His headquarters will be in New York. Mr. Richardson joined the corporation in 1939.

L. S. Madsen has been named general sales manager for the agricultural chemicals operations of Olin Mathieson Chemical Corporation, it was announced by Sam L. Nevins, corporate vice president.

Mr. Madsen, formerly general manager of the western district at Phoenix, Ariz., will be located at operations headquarters in Little Rock. He will report to Gerald A. Wakefield, director of sales.

Five other appointments were also announced by Mr. Nevins:

Edward W. Abrahams has been appointed general manager of the western district in Phoenix, succeeding Mr. Madsen. He formerly was assistant general manager.

Dr. Jesse L. Mellor, formerly agronomist of the western district, has been named assistant general manager of the district.

Dr. Ivan E. Miles, formerly southwestern district agronomist at Houston, has been named agronomist for both the southern and southwestern

districts. His new office will be in Little Rock.

Thomas W. Crockett, manager of irrigation sales, has been transferred from the Little Rock office to Williamston, N. C., where he will report to James C. Cooke, Southeastern district manager.

Paul F. Schowengerdt has been named special assistant to the director of sales. He was general sales manager.

Robert Fitzsimmons has been named public relations advisor for the Chemicals Division of Olin Mathieson, it was announced by Gene M. Brown, public relations manager. He also will continue to be responsible for special public relations projects.

At the same time, it was announced that Kenneth M. Baker, former public relations advisor for the Chemicals Division, has been appointed public relations advisor for the company's new organics division. In addition, he will continue to serve as public relations advisor for the agricultural chemicals operation.

Central Farmers

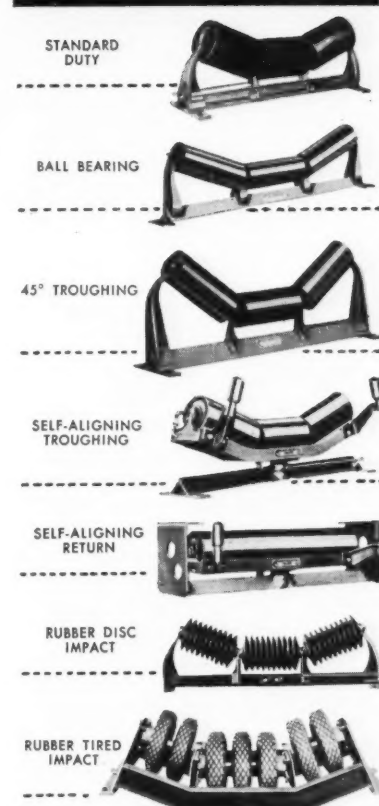
D. A. Williams, chairman of the board of directors of Central Farmers Fertilizer Company, Chicago, has announced the resignation of Joseph J. Lanter as president. The board had elected Kenneth F. Lundberg as his successor. In accepting Mr. Lanter's resignation the board expressed appreciation for his services as a board member for a number of years and as president since 1955.

Mr. Lundberg has been with Western Farmers Association, of Seattle, Washington, for the past twenty-five years. He was most recently director of operations there. As president of Central Farmers, Mr. Lundberg will devote full time to the direction of the activities of the corporation.

Ortho Movie On Cotton Fertilization

In preparation for the past year, the most recent Ortho agricultural newsreel release tells the story of cotton fertilization, from pre-plant to harvest. Filmed for the most part in the Mesa, Arizona area, the 10-minute, color-sound motion picture points up the importance of continuous feeding in the achievement of a four-bale crop.

This film is available on free loan to any interested grower group. Inquiries should be directed to L. F. Czufin, manager, Advertising & Public Relations, at California Chemical Company's Ortho Division headquarters in Richmond, Calif.



STANDARD ITEMS FROM STOCK!

Whatever your needs in bulk materials handling equipment, you'll find it in the Continental Conveyor line. Pulleys, Bearings, Take-Ups, Drives, Trippers, Feeders, Hold-Backs.

Call on your
CONTINENTAL CONVEYOR MAN



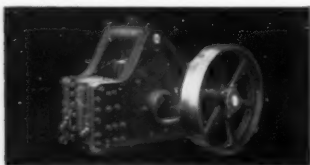
Sales Offices in: ATLANTA BIRMINGHAM
DALLAS HUNTINGTON MEMPHIS NEW YORK
Formerly Industrial Division, Continental Gin Co.

NO MAJOR REPAIRS IN 25 YEARS*

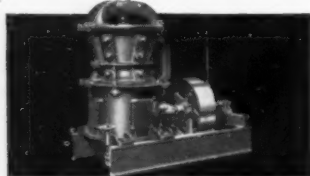
**Sturtevant Construction Assures
Long Mill Life at Top Loads**

Sturtevant crushing and grinding machinery answers the long life top-load production problem for medium to small size plants. Many Sturtevants have been operating above rated capacities for more than 25 years, and without a major repair.

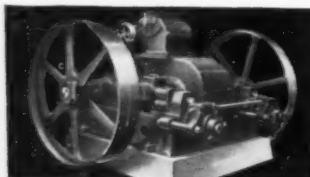
"Open-Door" design gives instant accessibility where needed—makes cleanouts, inspection and maintenance fast and easy. Machines may be set up in units to operate at equal quality and capacity.



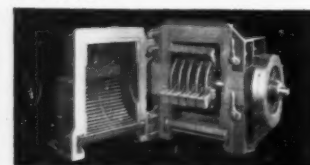
Jaw Crushers—Produce coarse (5 in. largest model) to fine (1/4 in. smallest model). Eight models range from 2 x 6 in. jaw opening (lab model) to 12 x 26 in. Capacities to 30 tph. All except two smallest sizes operate on double cam principle—crush double per energy unit. Request Bulletin No. 062.



Rotary Fine Crusher—Reduce soft to medium hard 3 to 8 in. material down to 1/4 to 1 1/4 in. sizes. Capacities up to 30 tph. Smallest model has 6 x 18 in. hopper opening; largest, 10 x 30 in. Non-clogging operation. Single handwheel regulates size. Request Bulletin No. 063.



Crushing Rolls—Reduce soft to hard 2 in. and smaller materials to from 12 to 20 mesh with minimum fines. Eight sizes, with rolls from 8 x 5 in. to 38 x 20 in.; rates to 87 tph. Three types—Balanced Rolls; Plain Balanced Rolls; Laboratory Rolls—all may be adjusted in operation. Request Bulletin No. 065.



Hammer Mills—Reduce to 20 mesh. Swing-Sledge Mills crush or shred medium hard material up to 70 tph. Hinged-Hammer Pulverizers crush or shred softer material at rates up to 30 tph. Four Swing-Sledge Mills with feed openings from 6 x 5 in. to 20 x 30 1/2 in. Four Hinged-Hammer Pulverizers with feed openings from 12 x 12 in. to 12 1/2 x 24 in. Request Bulletin No. 064.

*Reports Manager W. Carleton Merrill concerning Sturtevant Swing-Sledge Mill at James F. Morse Co., Boston.

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MILL COMPANY**

153 Clayton St., Boston 22, Mass.

Fertilizers in South Africa

...Group studies long-range plan

by H. J. KOCH

Of international interest is the recent appointment by the Cabinet of a Committee to investigate the future of the Fertiliser Industry in South Africa.

The bodies and companies represented are present and potential manufacturers, state departments responsible for Government policy and the agricultural world (represented by the two departments of agriculture and the S.A. Agricultural Union representing the Co-operative Societies).

The intention is to plan on a broad front. This is indicated by the Terms of Reference which are as follows:

To advise the Government on the future development of the fertiliser industry in the Union with respect to the local production of the three major plant foods, phosphate, nitrogenous, potash, or any mixtures of these, and with special reference to the attainment of the following objectives:

1. The provision to the farming industry of an assured source of supply of the cheapest possible fertiliser as measured in terms of the unit cost of plant food in the soil;
2. the utilisation, as far as economically feasible, of local sources of raw material;
3. the rationalisation, as far as possible, of the fertiliser industry with regard to its efficient organisation, the use of progressive techniques, the application of effective distribution techniques and channels, and the attainment of low total transport charges;
4. the best location of the various production units from the point of the national economy as a whole; and
5. the possibility of developing an export market of locally manufactured fertilisers.

Because of the local production of raw phosphate and nitrogenous fertilisers in sufficient quantities to meet the country's requirements, the present location at the coast of factories based on the use of imported raw materials is uneconomic. The main consuming market is inland and in the vicinity of where the raw materials are being produced. More



H. J. KOCH

THE AUTHOR — Mr. Koch is industrial adviser for Chemical Industries of South Africa (Pty.) Ltd. at Johannesburg. He has an extensive background in the fertilizer industry, and is known to many of our U. S. readers through his visits to this country, as well as through his past contributions to this magazine.

factories inland, therefore, become an essential requirement.

There is also a need to conserve certain water and labour resources and develop others. This is catered for in the State policy of decentralising industry and developing border areas.

The participation of the co-operative movement in the fertiliser trade—a well established practice in many countries—appears a distinct possibility in the future of South Africa. The use of the existing distributing facilities of the co-operative societies and the creation of a central selling body for fertilisers should have a marked effect on reducing distributing costs which will benefit the farmer and should not reduce profits to the producer. The participation of the co-operative societies, the main users, should avoid any likely criticism of monopolist practices and should facilitate the adoption of more progressive fertilisers and fertiliser practices.

The findings of the Committee will be awaited with interest and the Cabinet is to be complimented on the establishment of this body at a time which is opportune in the history of fertiliser manufacture in South Africa.

A sounder foundation could not be laid for the future to ensure achieving the first and most important article of the Terms of Reference:

The provision to the farming industry of an assured source of supply of the cheapest possible fertiliser as measured in terms of the unit cost of plant food in the soil.

The provision to the farming industry of an assured source of supply of the cheapest possible fertiliser as measured in terms of the unit cost of plant food in the soil.

The International Scene

AUSTRALIA

Temporary levy on N products

A temporary duty is in force on imported nitrogenous fertilisers. The duty is levied on the nitrogen content of fertilisers at the rate of 25s a cwt. This duty is in addition to the existing non-protective tariff. It applies to imports of sulphate ammonia, but did not apply to specified quantities of urea and other nitrogenous fertilisers imported for home use before May 31. Exemption is also granted for any products containing nitrogen which are imported for use other than as fertilisers.

The temporary duty was recommended by the Tariff Board following a request by Australian manufacturers for emergency protection.

CZECHOSLOVAKIA

Planning big fertilizer production gain

Fertilizer production in 1959 consisted of 133,000 metric tons of nitrogenous and 135,000 tons of phosphatic fertilizers. Plans for 1965 call for increases to 320,000 tons of nitrogenous and 286,000 tons of phosphatic materials. Two nitrogen plants are to be expanded and three new plants constructed by 1965. Three new phosphatic fertilizer plants are to be added, one of which is scheduled for completion in 1961.

DENMARK

Permits borrowing for N plant building

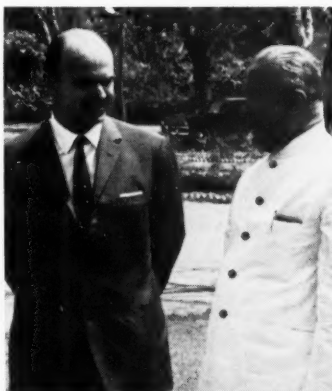
A 25 million Swiss franc (about 40 million kroner) loan, to apply for a period of 14 years, has been floated in Switzerland. It is being raised by the Danish sulphuric acid and superphosphate factory and is to be used for the nitrogen factory at Grenaa established by Danish Sulphuric, the Danish Co-Operative Fertilizer Company, and Norsk Hydro (Norwegian).

This is the first time since the war that a private firm has had permission from the National Bank to raise a loan abroad for investment in Denmark. The reason is that the factory will produce a commodity now imported by Danish farmers, thus saving foreign exchange.

ECUADOR

New plant would cut imports

Plans for the construction of a fertilizer plant in Guayaquil using sewage waste are being considered by



Thomas M. Ware, president of International Minerals & Chemical Corporation, talks with Dr. S. K. Patil, India's Minister of Food and Agriculture, on a recent tour to study India's fertilizer needs. IMC, together with California Chemical Company and E.I.D. Parry, an Indian company, have been granted a license by the Indian government to build a \$51 million fertilizer plant on the east coast of India. Mr. Ware visited the site of the proposed plant at the port city of Visag. Others who visited India with Mr. Ware are: C. S. Dennison, vice president—overseas operations division; George W. Moyers, vice president and assistant to the president; and Harold Gibson, manager of manufacturing development department, overseas operations division.

a group of investors. If built the factory may reduce imports of fertilizer which, according to the latest statistics, amounted to \$1.4 million, including \$464,000 from the United States, \$540,000 from West Germany, and \$267,000 from the Netherlands—Bogota.

INDIA

\$1,260,000 for soil science institute

India proposes to establish a national institute of soil science, according to Indigram, an official publication.

The Government has provided 6,000,000 rupees (\$1,260,000) for this purpose. An amount of \$600,000 is expected to be available from the United Nations Special Fund for getting the necessary equipment from abroad.

Marketing body formed

The Union Ministry of Food and Agriculture has accepted the Fertilizer Distribution Inquiry Committee's recommendation that a Central Fertilizer Marketing Corporation be set up to take over the duties now performed by the Central Fertilizer Pool.

This will be in addition to the Fertilizer Corporation of India which is a purely production organization.

The Marketing Corporation with generally the same aims as the Fer-

tilizer Pool, namely the welfare of cultivators and increased agricultural production, will be an autonomous body.

The value of the annual turnover of fertilizers to be distributed by the new corporation will be of the order of Rs. 150 crores by the end of the Third Plan.

IRAN

To increase fertilizer imports

The Government of Iran has announced that 50,000 metric tons of fertilizers will be imported in 1961, 80 percent more than in 1960. The Ministry of Agriculture has been allocated 35,000 tons; the Ministry of Customs and Monopolies, which controls tobacco and tea, 7,000 tons; and private merchants, 8,000 tons. The materials to be purchased by the Ministry of Agriculture include ammonium sulfate, 13,000 tons; urea, 6,500 tons; superphosphate, 500 tons; ammonium phosphate, 4,000 tons; ammonium nitrate, 3,500 tons; and potassium sulfate, 3,000 tons. Purchases of 21,000 tons have already been made from Italy, Belgium, Tunisia, and Portugal. The Government sells fertilizers to farmers at reduced costs to stimulate crop output and to educate farmers in their use. A fertilizer plant under construction at Shiraz is scheduled to be in operation in 1962.

ISRAEL

Dead Sea to go into black

Israel's phosphate deposits — her second largest mineral resource after Dead Sea brine—look like becoming at long last an important source of foreign exchange instead of a barely profitable investment.

This radical change can be expected as a result of the change-over from the export of up-graded phosphate rock to the sale of finished phosphate products. The new departure is envisaged under an £8m. master plan, prepared by the Negev Phosphate Company (a Government-controlled concern). Part of the plan has already been confirmed by the Inter-Ministerial Economic Committee.

The plan provides for the production of 200,000 tons of calcinated phosphates annually and for the manufacture of concentrated phosphoric fertiliser and animal foodstuff additives. Work has already started on the calcination part, with an initial £400,000 worth of equip-

ment due to arrive shortly, mainly from West Germany. Phosphoric fertilizer and food additive are to be produced at a combined rate of 140,000 tons a year. In addition, the plan envisages the construction of a £3m. plant for the annual production of 60,000 tons of soda ash (used mainly in glass-manufacture).

JAPAN

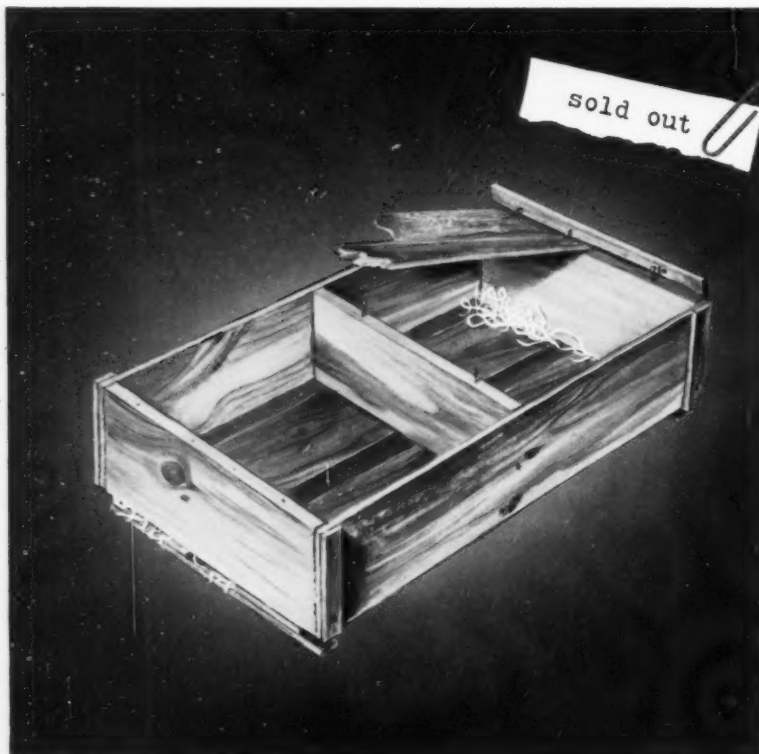
To double ammonium chloride by 1963

Japan's production of ammonium chloride now being turned out by

Asahi Glass, Ube Soda, Tokuyama Soda and Tovo Soda, will be more than doubled in the next three-year period. Announcement to that effect has been made by the Ammonium Chloride Fertilizer Association.

The output, accordingly, will reach 690,000 metric tons, during 1963, an amount more than twice the 340,000 metric ton goal for 1960.

Ammonium chloride now accounts for eight per cent of the nitrogenous fertilizer produced in this country. That rate will be boosted to 20 per cent by 1963.



Because the fruit and vegetable crops were treated with

TRIANGLE BRAND COPPER SULFATE

Regular or basic copper sulfate should be mixed in insecticide-fungicide sprays and dusts to insure appetizing, attractive fruits and vegetables that consumers "reach for."

When used in fertilizers, Triangle Brand Copper Sulfate helps to enrich the soil, resulting in healthy, profitable crops.

Help your customers produce more profitable crops. Use regular or basic Triangle Brand Copper Sulfate in your fertilizer and insecticide-fungicide formulations...it will mean more money in your pocket!



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RUMANIA

New plan sets big agriculture goals

Rumania's third Economic Plan aims at a 70- to 80-percent increase in agricultural production by 1965 over 1959 levels.

So sharp a rise indicates a large increase in agricultural exports, since Rumania's low rate of population growth (1.7 percent a year) and already adequate per capita daily intake of 2,800 calories suggest that little of the planned production increases are for home consumption.

Part of the plan to increase crop production calls for upping the use of chemical fertilizers from 4.7 pounds of plant nutrients per acre to 45 pounds in 1965. (Bulgaria, with a similar type of agriculture, uses an average of 48 pounds per acre.) Largest problem will be the necessity for a ninefold increase in fertilizer manufacturing capacity.

VIETNAM

Opening up phosphate deposits

North Vietnam is opening for production the great phosphate deposits near Leo Cai on its northwest frontier with Red China.

For anyone concerned with the future food needs of Asia's burgeoning populations, this is an event of major consequence. Particularly, it can become a boon to Communist China which is importing annually from Europe more than a million tons of chemical fertilizer. And Peiping admits they need at least 20 times this amount every year.

Phosphate rock must be shipped some thousands of miles from the United States, the Afro-European region and other distant supply sources, with freight rates adding substantially to the cost of fertilizer.

The phosphate deposits now being opened by the Communists in North Vietnam are estimated to contain more than one billion tons. They are in the form of apatite, with a reported high percentage of phosphoric acid.

The first plant to process the apatite is being built at Phu Tho on the Red River some 50 air miles northwest of Hanoi.

The rapidly expanding Chinese Communist railway system ties directly into this region of North Vietnam and offers Peiping ready access to a fertilizer resource vital to the future of its grandiose five year plans for the rural communes.

-of This and That...

Jacob White, president of Nitrogen Division of Allied Chemical Corporation, New York, has been elected a member of the National 4-H Service Committee.



JACOB WHITE

A supporter of 4-H work for many years, Mr. White was named for the post by the board of directors of National 4-H Service Committee at their recent annual meeting.

Allied Chemical sponsors 4-H awards in the national field crops program and is host to boys and girls from virtually every state who go to Chicago for the National 4-H Club Congress held right after Thanksgiving.

Mr. White has been president of the Nitrogen Division since 1958, having joined the firm 40 years ago.

Albert Sidney Noble Agency, New York City, specialists in agricultural advertising and public relations, celebrated its 25th year of business on June 1. For as many years as anyone on CF's staff can remember, and before,



A. S. NOBLE

this agency has handled two well known fertilizer industry accounts—Allied Chemical's Nitrogen Division and Virginia-Carolina Chemical. Something of a record we think.

Starting as a one-man shop, the A. S. Noble organization today handles leading fertilizer, feed and pesticide accounts. All key agency employees have comprehensive agricultural backgrounds. Mr. Noble began his career as a newspaperman. He went to New York City in 1928 as an advertising manager, and opened his own agency in 1936. He is a graduate of Mississippi State University, class of '24.

The Vincent Sauchellis (NPFI chemical consultant) were involved in an auto collision on their way to The Greenbrier for last month's NPFI meeting. Mrs. Sauchellis' foot was painfully injured, but the clinic there said no bones were broken. The Sauchellis returned from the far east about two months ago after a stay of nearly a year.

The farmers and the fertilizer industry weren't the only ones on a limb because of the heavy spring rains. Gordon Cunningham of Tennessee Corp. said their home on Bohler Road in northwest Atlanta was flooded so thoroughly that it was pictured on the Associated Press wire and in many newspapers throughout the country.

Gene Van Deren of Bluegrass Plant Foods, Cynthiana, Ky. has a hobby—horses (his own). Seems he's been naming some for the late Tobe Bradley, who for many years was PCA's midwest manager. This year it's Tobet, the third of the line which carries some variation of Tobe's name. Gene thinks he's got a real speed merchant in Tobet and has high hopes for this year.

Gerald D. Homberg, Spencer Chemical Co., Kansas City, has been elected secretary of the K. C. Chapter of Tax Executives Institute.

Golfer Charlie Floyd, chemical control man in Virginia-Carolina's manufacturing department, home office, recently shot a hole-in-one at Hermitage Country Club, Richmond. He used a five-iron on the 175-yard 18th hole. The ball bounced at the edge of the green and rolled 15 feet into the cup. This was the third hole-in-one for golfer Floyd (one of V-C's top golfers)—his others were at Savannah, Ga., in 1937 and Columbia, S. C., in 1947.

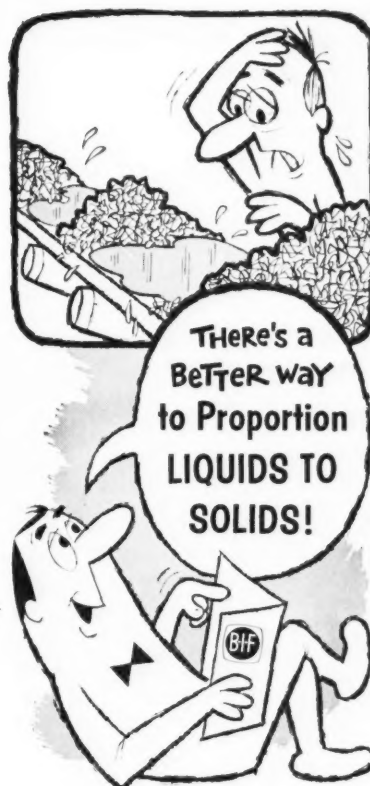
Frank G. Bamer, chairman of Agronomy extension at Penn State, and known throughout the state for his work in crop and soils, retired June 30 after 25 years at the university. He will have emeritus rank as professor of agronomy extension. Soil conservation work initiated by Mr. Bamer has grown to one of the foremost state programs in the U.S. Fertilizer and seed programs he helped develop have been incorporated in the "Agronomy Guide," widely distributed Penn State publication.

Joseph A. Thompson, Little Rock, Ark., chief accountant for agricultural chemicals, Olin Mathieson Chemical, has been elected to the board of directors of the National Associations of Accountants. He has served as president of the Central Arkansas chapter of the national association during the past year.

In Greenfield, Wis., Robert Buerger canvassed his neighbors with the proposition that they all buy their fertilizer together and get the wholesale rate. Buerger got 18 orders and was given a big discount. The fertilizer was delivered to the Buergers the next days and he delivered some of it and the other neighbors picked up theirs at his place. Robert Buerger was wearing a big satisfied smile until his wife pointed out the flaw in his arrangements—he forgot to order any fertilizer for himself.



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Does your present proportioning system suffer from short range limitations? Can one unit run empty and waste ingredients . . . spoil end product? B-I-F offers a new concept in the control of liquid to solid proportioning in the combination of its continuous dry materials weigher and its closed loop metering system. Fail-safe system — automatically stops when either unit is empty . . . prevents ingredient waste and product spoilage. Forced balance weighing principle provides wide range, greater accuracy. System governed by simple gravity flow . . . operates automatically, continuously . . . features explosion-proof construction!

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Association Activities

Southwest Conference, Grade Hearing Set for July 19-22 at Galveston

The Planning Committee of the Southwestern Fertilizer Conference and Grade Hearing has completed the program for the meeting, which will be held at the Galvez Hotel, Galveston, Texas, July 19-22. The grade hearing will be held the morning of July 21 at 9:30. Control officials from Arkansas, Louisiana, New Mexico, Oklahoma and Texas are cooperating.

The theme of the program, which is vital to all persons connected with the fertilizer industry, will be 'Fertilizer Needs and Consumption in the Southwest.' The first panel will cover the subject 'Where are We and Where Should We Be?' The moderator for this panel is John E. Hutchinson, director of Agricultural Extension Service of Texas. Participants are Woody Miley, Extension soil specialist, Arkansas; John Cox, State agent, Louisiana; Dr. L. H. Brannan, director, Agricultural Extension Service, Oklahoma; Dr. W. F. Bennett, Extension soil specialist in charge of soil testing, Texas.

The second panel embraces the subject 'How are We Going to Get There?', with the moderator being Dr. Sam Tisdale, agronomist, Sulphur Institute. Kenneth Bates, assistant director, Agricultural Extension Service, University of Arkansas, will talk on 'Teaching the Farmer.' Murray Rennick, Rolla Feed Mills, Rolla, Missouri, will speak on 'How a Dealer Does It.' Mr. Rennick is

widely known for his excellent talks on how to be a good fertilizer dealer.

M. E. Wierenga, vice president and manager of marketing, Ortho division, California Chemical Company, Richmond, California, will give an important talk, 'Selling the Potential.' Mr. Wierenga rose from salesman to vice president of Ortho in 13 years and is considered an outstanding marketing man.

Social activities will include a reception on Wednesday evening; a social and luncheon for the ladies Thursday noon. Sports include golf, shuffle board, fishing and a boat excursion.

The Southwestern Fertilizer Planning Committee is made up of Dr. and Mrs. N. D. Morgan, American Potash Institute, chairman, and the following:

Mr. and Mrs. E. K. Chandler, National Plant Food Institute; Mr. and Mrs. A. T. Edwards, Red Star Fertilizer Co.; Mr. and Mrs. Stafford Beauboef, John Deere Chemical Co.; Mr. and Mrs. Roy Frierson, Phillips Chemical Corp.; Mr. and Mrs. Harold Trammell, Farmers Fertilizer Co.; Mr. and Mrs. Gerald Wakefield, Olin Mathieson Chemical Corp.; Mr. & Mrs. Stanley Hackett, Dixie Fertilizer Co.; Mr. & Mrs. Jack K. Lindsey, International Minerals & Chemical Corp.; Dr. and Mrs. J. F. Fudge, Texas State chemist; Mr. and Mrs. Jimmy Powledge, National Hotels Corp.

Planning Committee of Southwestern Fertilizer Conference and Grade Hearing, to be held at the Galvez Hotel, Galveston, Texas, July 19-22. Left to right: Jack Lindsey, International Minerals & Chemical Corp.; E. K. Chandler, National Plant Food Institute; G. H. Wakefield, Olin Mathieson Chemical Corp.; Mrs. & Dr. J. F. Fudge; Mrs. Beauboef; Dr. & Mrs. N. D. Morgan, American Potash Institute; Stafford Beauboef, John Deere Chemical Co.; Mr. & Mrs. A. T. Edwards, Red Star Fertilizer Co.; Mrs. Wakefield; Stanley Hackett, Dixie Fertilizer Co.; Harold Trammell, Farmers Fertilizer Co. Seated: Mrs. Jack Lindsey, Mrs. Hackett, Mrs. Trammell, Mrs. Chandler.



Solutions Association Meeting Oct. 30-31, Nov. 1

The annual convention and trade show of National Fertilizer Solutions Association will be held this year at the Edgewater Beach Hotel in Chicago on October 30-31 and November 1.

Demand for conference rooms by the various suppliers to this industry is expected to be greater than any previous convention. As a result, one entire floor of the hotel has been set aside for such rooms. Firms interested in securing conference room space may write to W. Harold Schelm, executive secretary, 901 Jefferson Bldg., Peoria, Ill.

Ed O'Nan, of Sturgis, Ky., chairman of the convention planning committee stated, "It appears that our 1961 convention and trade show will be the largest ever. A varied program has been planned that will be most interesting to the membership. With the tremendous interest in the conference rooms, anyone in attendance will be able to secure first-hand information on almost any equipment, etc."

Activities for the ladies attending the convention are being planned by Mrs. Don Humphrey, Kingston, Ohio and Mrs. O'Nan of Sturgis, Ky. They promise an interesting and enjoyable time for participants in their program.

Empire State Meet July 11-12

The Empire State Soil Fertility Association expects 125 to be in attendance when they meet July 11-12 at Hamilton College, Clinton, N. Y. Tours of central New York farms will be featured, and the banquet July 11 will be addressed by Frank J. Welch, Assistant Secretary of Agriculture.

Mississippi Soil Convention August 11

The August 11 program of the Mississippi Soil Fertility and Plant Food Council convention seems to be largely fun, but the group is doing a big job, according to reports we get from there. Their soil fertility program is producing demonstrations on soybeans, cotton, corn, temporary grazing, sweet potatoes, permanent pastures, broom-sedge eradication—in five counties. This summer, tours will be arranged for farmers to view these demonstrations.

Schelm Named Secretary Of Solutions Association

Donald Humphrey, president of the National Fertilizer Solutions Association, announces the employment of W. Harold Schelm of Peoria, Illinois to serve as the executive secretary of the association.



Schelm

The office of the association is being moved from Chicago to room 901, Jefferson Building, Peoria, Illinois.

Mr. Schelm is well known to the membership of NFSA. He is one of the group that originally founded the present association, and has been active in the work of the association for many years. He previously headed a company that manufactured tanks and application equipment used in this industry.

"The employment of a full-time secretary" said Mr. Humphrey, "will provide for our members many services that were heretofore not possible. For the present," he added, "the editing and publishing of *Solutions Magazine*, the official organ of the Association, will be continued by the firm of Storms & Wescott of Chicago."

Safety Meeting Plans Set for October

Plans have been completed for the annual meeting of the Fertilizer Section, National Safety Council, to be held in the Washington Room at the Pick Congress Hotel in Chicago October 16-17.

All members of the fertilizer industry are urged to attend the sessions, whether they are members of National Safety Council or not. A modest registration fee is all that is required for attendance at the Fertilizer Section meetings.

The two-day program will consist of two afternoon sessions, beginning at 2:00 p.m. and adjourning around 5:00 p.m. The second day's program will be preceded by a special Fertilizer Section luncheon at noon.

Program participants include safety specialists from the fertilizer industry, from outside companies, and from insurance companies.

Fertilizer Section General Chairman Ansel I. Raney, safety director for Phillips Chemical Co., will preside on the first day and Gaither T.

Newnam, director of insurance, labor relations and safety for Smith-Douglass Co., will preside at the luncheon on the following day.

Any fertilizer mixer wishing to obtain additional information about the safety meeting can get complete details by writing to the editor of this magazine.

Round Table Will Study Materials Handling Topics

The proposed theme of the Fertilizer Industry Round Table, the industry's annual technical conference to be held in Washington, D.C. November 8-10, is 'Materials Handling.'

In a bulletin to those who have attended past meetings, the Executive Committee has announced this central theme. Papers will be semi-informal in nature, returning to the 1957 and 1958 meeting formats, and two of the five half-day sessions will be devoted to questions and answers.

The central theme will be subdivided into four specific topics: unloading (gas, liquid and solids), storage (gas, liquid and solids), shipping (gas, liquid and solids—bag and bulk), and handling dust in the plant.

Industry members who have attended previous sessions of the Round Table were asked to suggest problems in this area for discussion, and urged to keep the meeting in the nature of a forum where plant operation problems are resolved in a practical manner.

Members of the Round Table Executive Committee are: Vincent Sauchelli, chemical consultant to National Plant Food Institute, chairman; H. L. Marshall of Olin Mathieson Chemical Corp.; Joseph E. Reynolds, Jr., of Davison Chemical Division, W. R. Grace & Co.; and Al Spillman, Fertilizer Manufacturing Cooperative.



CALIFORNIA RANGE STUDY

Range fertilization was discussed by, left to right, Dr. George Hawkes, California Chemical Co.; Dr. Milton Jones, University of California agronomist; Larry Hyder, J. R. Simplot Co.; Jim Holliday, California Chemical Co.; and Les Orton, Collier Carbon and Chemical Corp., during the Range Field Day held at Hopland, Mendocino County, California, recently. Mixed grasses and legumes responded strikingly to nitrogen, phosphate and sulphur, the demonstration showed.

Louisiana Grade Conference July 14

The 36th annual grade conference for Louisiana will be held July 14 in the State Capitol, 9:30 a.m. The program includes discussion of plans for increasing fertilizer use on certain crops, developments in the fertilizer control laboratory, grade recommendations for horticultural and ornamental crops, for field and forage crops, fertilizer sales in Louisiana, adoption of grades for 1961-62.

Dave L. Pearce, Commissioner of Agriculture will be presiding chairman. All interested concerns are invited to be represented.

Canadian Meet in August

The Manoir Richelieu will again be the scene, August 16-20, of the Canadian Fertilizer Association convention. If your registration form did not reach you, write R. P. Pennington, Potash Company of America, Suite 1112, 2 Carlton St., Toronto 2, Ontario.

Industry Meeting Calendar

DATE	EVENT	LOCATION	CITY
July 16-17	Plant Food Institute of N.C. & Va.	—	Asheville, N. C.
July 19-21	Southwest Fertilizer Conference	Galvez Hotel	Galveston, Tex.
Aug. 16-20	Canadian Fertilizer Association	Manoir Richelieu	Murray Bay, Que.
Oct. 4-6	Southeastern Fertilizer Conference	Biltmore Hotel	Atlanta, Ga.
Oct. 12-13	Northeastern Fertilizer Conference	Schine Inn	Chicopee, Mass.
Oct. 16-17	Fertilizer Safety Conference	Pick-Congress Hotel	Chicago, Ill.
Oct. 25-26	Fertilizer Control Officials	Woodner Hotel	Washington, D. C.
Oct. 30-Nov. 1	National Fertilizer Solutions Assn.	Edgewater Beach Hotel	Chicago, Ill.
Oct. 30-Nov. 1	Official Agricultural Chemists	Shoreham Hotel	Washington, D. C.
Nov. 2-3	Pacific N.W. Fertilizer Assn.	Gearhart Hotel	Gearhart, Oreg.
Nov. 8-10	Fertilizer Industry 'Round Table'	Mayflower Hotel	Washington, D. C.
Nov. 12-14	California Fertilizer Association	Jack Tar Hotel	San Francisco

—Around the Map...

(continued from page 38)

acid and by-product gypsum. The dilute acid is concentrated for production of triple super, for sale as phosphatic fertilizer solution, and for reaction with limestone to produce dicalcium phosphate.

ERCO's phosphoric acid process incorporates the latest in European and American design, and it will produce a high quality acid of unusually low solids content.

At the present time, there are no deposits of phosphate rock in Canada which are commercially competitive, and this important raw material must be imported from Florida. However, ERCO is continuing its efforts to locate suitable domestic deposits.

The new plants at Port Maitland were designed and constructed by Leonard Construction Company, in cooperation with ERCO's own engineering division.

EL SALVADOR

Continental Oil and National Bulk Carriers have proposed to the government the construction of a \$6,000,000 ammonia plant at Acajutla. Fertilizers produced would be expected to fill El Salvador's demand and supply export trade in other Central American countries.

ENGLAND

Nitrogen Fertilizers of Flixborough is now under way with the new synthetic ammonia plant, contract for which they awarded to Chemical Construction. It is expected to be complete late in 1962.

Fisons are inviting inquiries concerning the two plants they plan in Wales as part of their \$33,000,000 expansion program.

ITALY

Biofert Sicilia, the joint creation of Societa Finanziaria Siciliana and

Fertilia of Rome, will have within two years plants at Palermo, Catania and Messina, all in Sicily, with a capacity of some 100,000 annual tons of 'compound organic fertilizers.'

MOROCCO

L'Office Cherifien des Phosphates (OCP), the Moroccan government-owned agency, has engaged **Dorr-Oliver, Inc.** of Stamford, Conn. to study the feasibility of a new phosphate rock drying process together with the possible use of nuclear power as a fuel source. **Burns and Roe, Inc.** of New York City and **Arthur V. Peterson Associates** of Westport, Connecticut will work with **Dorr-Oliver's** project engineering group on the nuclear aspects of the project.

As a part of OCP's comprehensive plans for expansion and modernization of Morocco's vital phosphate industry, the study will establish the economic and process feasibility of the new drying technique which has already been operated at OCP's **Khouribga** operation on a pilot plant scale. Utilizing the vapor recompression principle, the process requires substantial volumes of steam as fuel. This load factor, together with Morocco's relatively high fuel costs, indicates that nuclear power may be economically competitive.

Sufficient engineering, design and cost data will be developed to enable OCP to make its decision on commercial exploitation by the year end.

NORWAY

An ammonia plant with an annual output capacity of 50,000 tons is planned in connection with the coke plant being built in **Nord-Rana**, northern Norway, by the State-owned concern **Norsk Koksverk**.

The Norwegian Government has

asked the **Storting** (parliament) for authority to guarantee a loan needed to finance the ammonia plant. The loan would be floated by **Norsk Koksverk**. Work on the plant could start this year with completion late in 1963, when the coke plant is due to go into operation.

Norsk Hydro, which uses ammonia in its fertilizer production, has concluded a 12-year contract to buy the ammonia produced by **Norsk Koksverk**. But **Norsk Koksverk** has reserved the right to use up to 15,000 tons a year for other purposes.

PAKISTAN

The natural gas fertilizer factory at **Multan** is expected to go into production by the end of October. Plants for producing ammonium nitrate and nitric acid have already been installed, and work in connection with the installation of one more plant, which will complete the factory, is in progress.

The factory, to be run on natural gas, will produce 103,000 tons of ammonium nitrate and 59,200 tons of urea annually.

The **Multan** factory, being set up by the **Pakistan Industrial Development Corporation**, will be the second in West Pakistan. The first plant is already functioning at **Daudkhel**.

RHODESIA

Rhodesian Federal Government has announced an agreement with the **American Independent Oil Company (Aminoil)** to build a \$36,400,000 oil refinery in the area between **Salisbury** and **Umtali** in the next two and a half years.

Frank Owen, minister of commerce and industry who negotiated the deal, said it was part of an \$84,000,000 investment that would include an oil pipe line from **Beira**, a nitrogenous fertilizer factory and a petrochemicals industry.



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Protecting Liquid Meters During Shutdown

With the peak season just past, here is a timely bit of advice on liquid meter maintenance distributed by Rockwell Manufacturing Company, whose products include meters for the fertilizer industry.

The accuracy and usefulness of all-ferrous liquid meters in fertilizer processing lines can be destroyed by rust and corrosion during shut-down periods of more than several days. Only proper preventative maintenance can prevent this deterioration.

The main ingredient for meter protection is a rust preventative oil with water displacing properties. Here are recommendations on how to protect meters during shut-down:

If the meter is not removed from the line, a connection for water and air is made in the inlet just ahead of the meter and between the meter and the meter inlet valve. Another connection for discharging is made near the meter outlet. This will prevent contaminating the downstream part of the system.

The unit should be flushed for at least five minutes with water at a sufficient rate of flow to rotate the meter. *Caution: this rate should not exceed 20 per cent of the rated capacity of the meter.* Allow meter to drain.

Next, a rust preventative oil is sprayed or atomized through the meter. The spray is applied for about 15 minutes with pressures of the air inlet and atomizer adjusted to turn the meter at about one-fourth (but not more than one-third) of its maximum rated speed.

Any rust preventative oil with water displacement properties can be used. Recommended oils include those that meet the specifications of MIL-C-16173a#, Grade III; MIL-C-972 (ships) — Grade III; USN-52-C-18-B-Grade III; and AXS-1759, Grade II.

If it is possible and practical to remove the meter from the line, put a blind flange on the meter inlet and tap it to receive a half-inch pipe for water and air supply.

Water flushing, draining, and oil spraying procedures are then the same as with a meter that stays in the line. If spraying is not practical, a meter that is removed from the lines can be filled with oil. It should be allowed to stand for at least eight hours before excess oil is drained. After draining, cover inlet and outlet connections to pre-

vent dust and dirt from entering meter.

Before putting the meter back into service, the lines should be thoroughly flushed, so that no foreign particles will enter the meter.

Proper maintenance and inspection of these meters will avoid trouble when they are put back in service.

Map Shows Fertilizer Use by Counties in U. S.

A new, five-color map of the United States showing the national distribution of commercial fertilizers used by farmers has been released by the Nitrogen Division of Allied Chemical Corporation.

The map shows the relative importance of each county as a fertilizer consumer in 48 states. It is based on U. S. Census of Agriculture figures.

Counties that use more than 15,000 tons of commercial fertilizer are shown in red on the map; 10,000-15,000 tons, in yellow; 5,000-10,000 tons in green; 1,000-5,000 tons, in blue; less than 1,000 tons, in white. With a mere glance a manufacturer can see where the distribution of commercial fertilizer is concentrated.

A limited supply of maps is available to fertilizer manufacturers and agricultural officials. Requests should be sent on company letterheads to Dept. 100, Nitrogen Division, Allied Chemical Corporation, 40 Rector St., New York 6, N. Y.

St. Regis Widens Bag Range

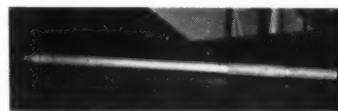
To meet the steadily increasing demand for the pasted valve multi-wall bag, St. Regis Paper Company has just installed in its Kansas City, Mo., bag plant the latest model B-8700 Burroughs bottomer, which can make a wider range of pasted bag sizes and types than is possible with any other single piece of bag manufacturing equipment.

The machine will increase the plant's production capacity of regular pasted and stepped end bags and will speed service to customers in the Mid-America region served by the plant.

Designed and built by the company, the machine is also in operation at St. Regis bag plants in other major sections of the country.

Improved Sampling Tube Royalty-free from IMC

International Minerals & Chemical Corporation is making available a royalty-free license for the manufacture and use of an improved fertilizer sampling tube which it patented earlier this year.



New sampling tube patented by International Minerals & Chemical Corporation for improved sampling of granular fertilizers is offered on royalty-free license for manufacture and use of tube. Ease of operation and freedom from clogging have produced superior results in tests conducted by IMC. Handle portion remains free of material.

The new tube has been designed to overcome clogging in operation. In addition, the sample-receiving slot has been widened to receive the proper proportion of all particles, including the larger particles. IMC researchers say it has proven particularly effective with granular fertilizer material.

Simple in design and operation, the tube is also relatively inexpensive to manufacture. IMC is making its patent available free in the interest of more accurate analyses of granular fertilizer samples.

Obituaries

William Richmond Anglin, who retired in 1943 after 40 years with Swift's plant food division, died June 4 in Columbia, S. C. after several weeks illness.

Daniel E. Likes, 73, retired chief engineer at Virginia-Carolina's Charleston, S. C. plant, died in May at Charleston.

Dr. Frederick V. Rand, 78, former USDA specialist in botany and plant pathology for Government experiment stations for more than 40 years, died at the Kensington Gardens Sanitarium in Washington, D. C., June 6 after a long illness.

William Stuart Rogers, 70, manager of the Southern Nitrogen, Charleston, S. C. operation died suddenly at his home May 18.

Walter S. Rupp, former president of Baugh & Sons, who retired in 1950 but remained on the board, died May 29 in Baltimore.

CF Staff-Tabulated TONNAGE REPORTS

FERTILIZER TONNAGE REPORT (in equivalent short tons) Compiled by Cooperating State Control Officials and Tabulated by COMMERCIAL FERTILIZER Staff

STATE	May		April		Jan.-Mar. Quarter		July-December		January-June		YEAR (July-June)	
	1961	1960	1961	1960	1961	1960	1960	1959	1960	1959	1959-60	1958-59
Alabama		175,641*	274,662	350,718	264,658	258,322	181,587	180,959	869,240	846,309	1,050,199	1,045,560
Arkansas	60,625	35,752	105,999	126,184	94,138	99,521	61,634	58,714	303,835	289,363	362,548	353,130
Georgia	305,450	414,392	498,625	306,864	222,787	154,797	313,241	299,194	1,102,220	1,130,998	1,401,414	1,425,749
Kentucky		131,612*	76,818	144,047	170,455	137,512	102,192	108,734	461,786	483,820	570,520	591,380
Louisiana	43,670	44,488	73,812	76,347	73,164	73,649	73,814	66,744	224,087	201,642	290,821	265,794
Mississippi	115,112*		193,506*		177,150	170,706	145,632	144,374	547,221	516,917	689,797	693,288
Missouri		166,112*	120,750	196,241	149,929	81,573	334,657	277,708	524,336	563,055	802,044	933,090
N. Carolina		303,065*	463,919	571,328	500,145	393,130	202,694	175,533	1,381,263	1,468,704	1,556,796	1,696,759
Oklahoma	20,310	17,164	18,661	24,349	36,433	19,520	94,690	72,511	72,246	64,738	144,757	133,586
S. Carolina	125,695	96,255	123,024	262,096	387,839	267,247	110,096	104,903	678,986	756,100	783,889	890,302
Tennessee	150,723	114,932	126,139	193,816	188,449	126,524	124,747	117,275	480,429	443,602	607,727	570,718
Texas	99,438	80,575	129,891	108,583	222,801	276,802	234,376	233,410	474,627	441,851	708,037	664,651
California		(reports compiled quarterly)			354,760	350,259	462,347	465,495	813,116	803,261	1,278,611	1,262,996
Virginia		(reports compiled quarterly)			258,171	221,611	168,479	141,177	591,113	618,965	732,290	779,143
Indiana			(reports compiled semi-annually)				317,372	321,956	828,164	856,316	1,150,120	1,172,657
New Hampshire			(reports compiled semi-annually)					3,694*	14,488	16,143	18,182	20,889
TOTAL	805,911	803,558	2,012,300	2,360,573	3,100,879	2,631,173	2,927,558	2,768,687	9,367,157	9,513,181	12,147,752	12,499,692

(not yet reported)

* Omitted from column total to allow comparison with same period of current year.



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ent form might not exist on earth.

Plants need nitrogen, and depend on lightning to provide it (according to *National Geographic*). Some 80 pct. of the air is nitrogen. There are 22 million tons of it floating above each square mile of the earth's surface. But this is gaseous nitrogen, not soluble in water. Plants can't use it until lightning goes to work.

The heat of a lightning flash causes some of the nitrogen in the

air to combine with its companion gas, oxygen. The nitrogen oxides can then dissolve in rain, forming dilute nitric acid—hence the piquant odor of the air during a storm.

Reaching the earth, this acid reacts with minerals in the soil to form plant-nourishing nitrates.

Lightning's good deeds may not stop there. Some weather experts believe it makes cloud droplets coalesce into raindrops, thus helping plants get more water, too.

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YOUNG MAN, age 40, desires position with future. Well experienced in dry mixing, continuous ammoniation and granulation. Presently employed, willing to relocate. Box #24, % Commercial Fertilizer, 75 Third St. N. W., Atlanta 8, Ga.

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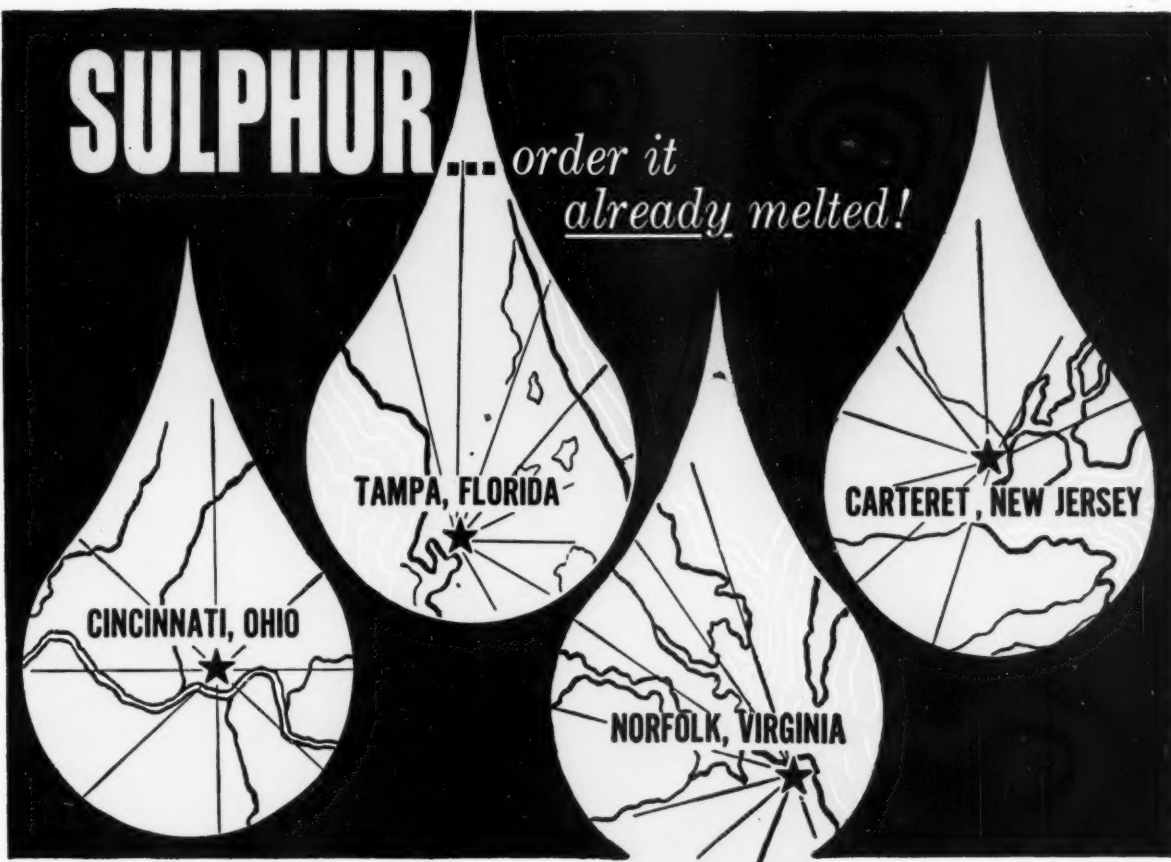
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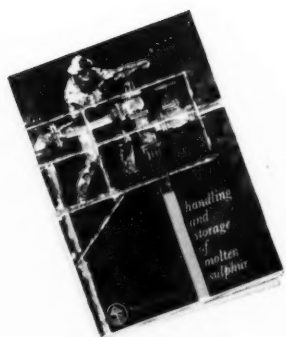


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